THE MINING CONGRESS JOURNAL

APRIL, 1918

VOL. IV

SAFETY—EFFICIENCY—CONSERVATION

No. 4

POPE YEATMAN

Now in charge of the non-ferrous section of the War Industries Board and an important factor in mining matters in Washington.

PUBLISHED BY

THE AMERICAN MINING CONGRESS

PUBLICATION OFFICE

MUNSEY BUILDING WASHINGTON, D. C.

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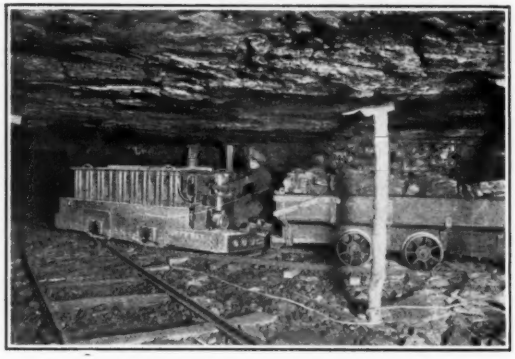

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EDITORIALS

The great issue ... 117
A business suggestion ... 118
Breeders of class hatred ... 118
Oil shale resources of the west ... 119
Labor's weapon of defense ... 120
The silver situation ... 120
Embargoes and industrial efficiency ... 121
The Ferris bill ... 121
Shrewd game of labor politics ... 122
Oil development ... 122
Mineral control bill ... 123

METALS

Aluminum prices ... 148
Antimony ... 131
Arsenic ... 131
Bismuth ... 132
Bonner, J. B. (with cut) ... 138
Bromine ... 132
Callbreath, J. F., testifies ... 136
Chromite ... 132
Chromite imports ... 161
Corundum ... 132
Day, Harry L., testifies ... 131
Graphite ... 132
Graphite importations ... 154
Imports reduced ... 124
Iridium ... 132
Magnesite ... 132
Manganese ... 132
Manning, Van H., testifies ... 131
Mercury ... 132
Mica ... 132
Mineral control bill ... 125
Mineral imports committee ... 134
Molybdenum ... 133
Northwest mining convention ... 162
Osmium ... 133
Platinum ... 133
Platinum commandeered ... 142
Potash ... 133
Pyrite ... 133
Smith, G. O., testifies ... 125
Steel prices ... 148
Sulphur ... 133
Tin ... 133
Tungsten ... 133
Uranium ... 133
Vanadium ... 133

COAL

Anthracite distribution ... 143
Anthracite output ... 158
Anthracite shortage ... 160
Arkansas prices ... 153
Assistants appointed ... 138
Blauwelt, W. S ... 142
Brewers cut output ... 143
Canadian shipments ... 159
Clean coal ... 156
Coke representative ... 159
Colorado prices ... 154
Dirty coal ... 160
Early buying ... 158
Groverman, W. H ... 159
Honnold, F. C ... 157
Illinois prices ... 144
Jobbers licensed ... 155
Jones, Senator, on fuel question ... 139
Limits contracting ... 157
Map directories ... 144
Michigan representative ... 138
Montana prices ... 154
New Mexico prices ... 142
Oklahoma prices ... 153
Pennsylvania prices ... 144
Prosecutions begin ... 141
Retail regulations ... 159
Safety work ... 161
Somerset field enlarged ... 159
Texas prices ... 144
Utah prices ... 154
Washington prices ... 153
Wayne county prices ... 160
West Virginia prices ... 144
Wyoming prices ... 154
Zone licenses ... 161
Zoning system ... 145

OIL

Fuel oil regulations ... 156
Oil industry in war service ... 149
Petroleum production ... 155, 164
Requa speaks ... 149
Supply men meet ... 155

MISCELLANEOUS

Industrial plants ... 161
Ordnance base ... 160
Personals ... 163
Spain's agreement ... 154

INDEX TO ADVERTISERS

Ainsworth, William & Son ... 33
Aldrich Pump Company, The ... 27
Allis Chalmers Mfg. Company ... 12
Allison Coupon Co ... 27
American Mine Door Company ... 29
American Steel & Wire Company ... 13
American Tempering Company ... 37
Atlas Powder Company ... 10
Buckeye Rolling Mill Company, The ... 37
Channon Company, H ... 13
Chicago Belting Company ... 15
Chicago Perforating Company ... 35
Connellsville Mfg. and Mine Supply Co. 25
Cross Engineering Company ... 29
Denver Quartz Mill & Crusher Co., The. 35
duPont de Nemours P'd'r Co., The E. I. 10
Edison Storage Battery Company ... 9
Electric Service Supplies Co ... 25
Electric Storage Battery Company ... Cover
Electric Material Company ... 31

(Continued on page 164)

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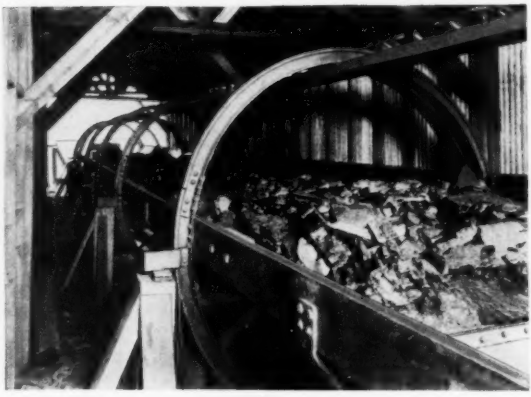

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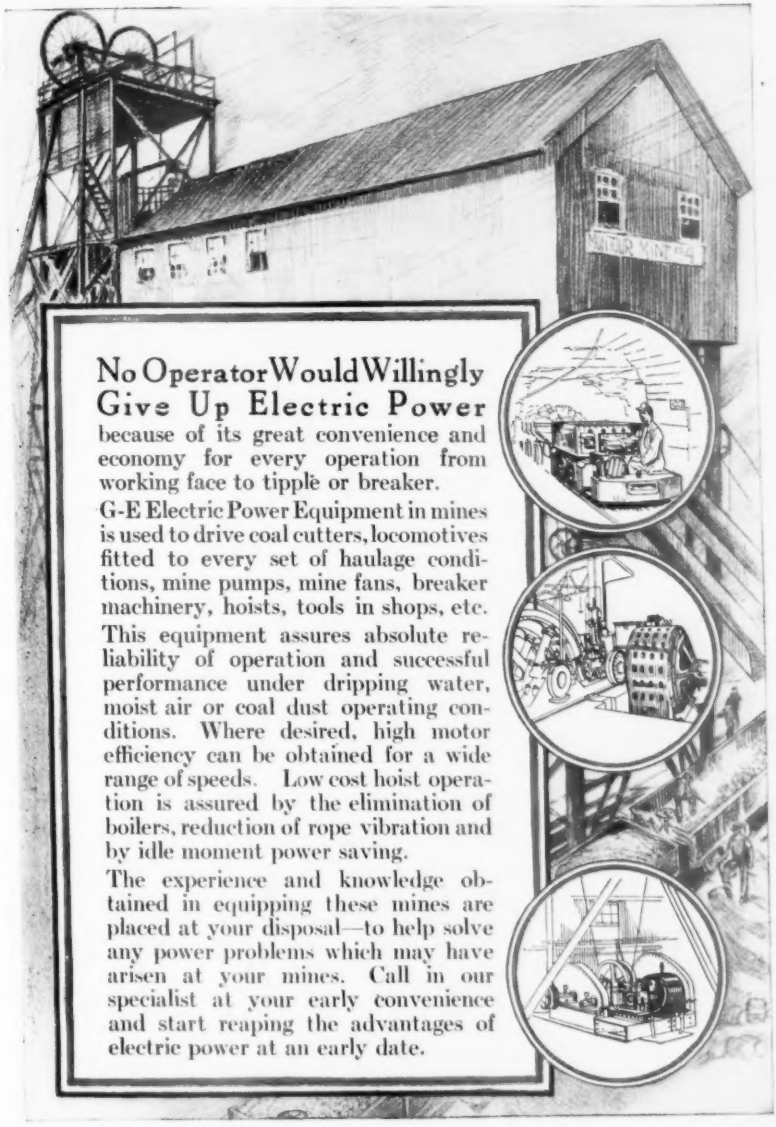

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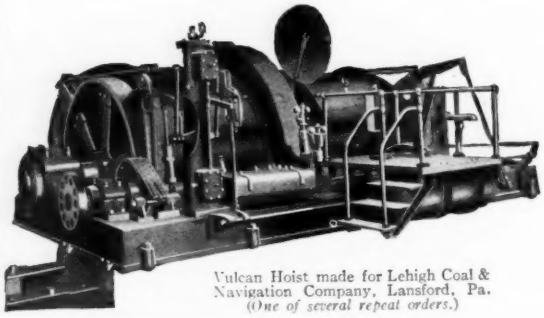

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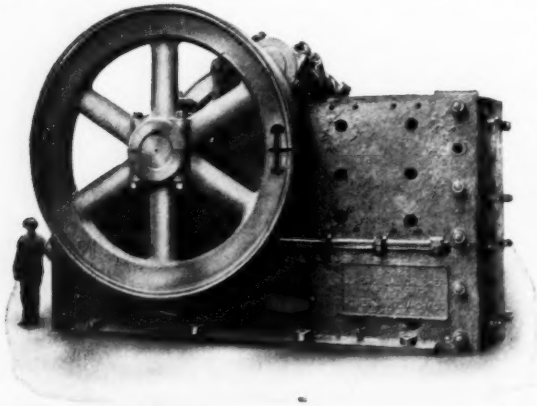

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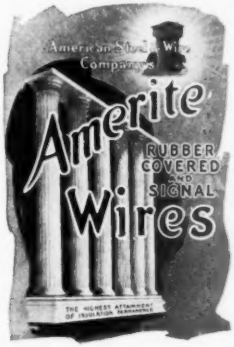

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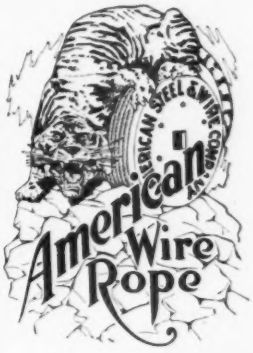

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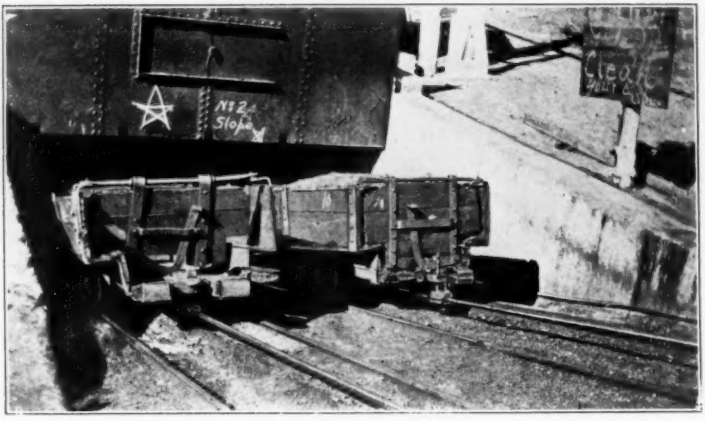

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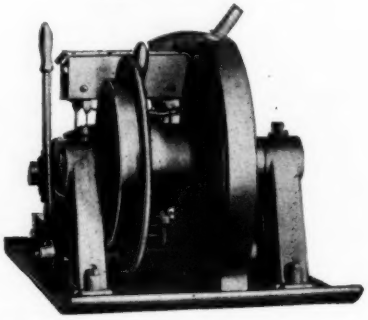

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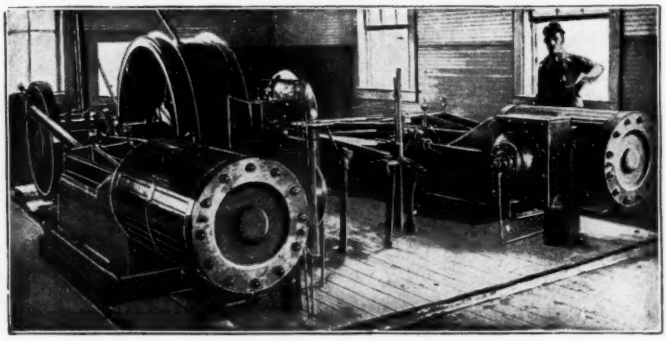

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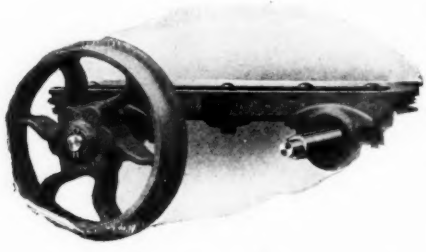

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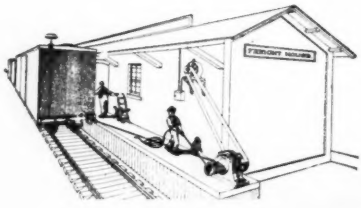

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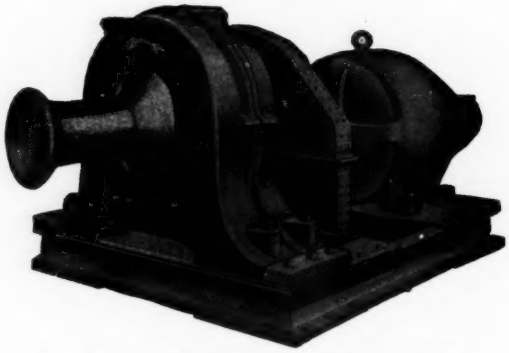

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VOL. 4. NO. 4 WASHINGTON APRIL, 1918

THE MINING CONGRESS JOURNAL

Official Organ of the American Mining Congress

THE GREAT ISSUE

To win the war with Germany is the great issue before the American people. Not until we have undertaken some of the real burdens of war shall we fully comprehend that no other issue is of any importance, that every other cause must be subservant to the successful termination of this great conflict. There can be, there must be, no doubt of the outcome. It is not to be conceived that any one of the nations now acting under the general term of Allies, shall withdraw from the fight, but if all should withdraw, the United States must, and can, and will win the war with Germany. If the day should come when we are fighting alone, we should understand then, as we have not yet imagined, the importance of bending every effort, giving every ounce of strength, and rendering every hour of service to the cause which is humanly possible.

We are withdrawing from the active field of production two millions of men, the flower of our young manhood to go into the trenches. It will require the entire effort of a largely increased number to produce the munitions and equipment, and transportation which are essential to make the fighting force effective. The men at the front must be fed. The men who are rendering special service to keep the men at the front must be fed, and the men not so employed must increase their productive capacity sufficiently to make up for this shortage, else the war must fail and democracy in the world become a failure. We believe profoundly that the laboring men of this country are as intensely loyal as a whole as it is possible for them to be. But we have serious doubts as to the loyalty of some of their leaders who wax eloquent in their discussion of labor's loyalty, and, at the same time, insist that the standards which have been achieved by labor during its many years of progress, must be maintained without regard to the effect upon the nation.

Of our estimated population of one hundred million, the census reports show that approximately forty millions are engaged in productive occupations. We are withdrawing ten million of these men from the productive occupations in which they have been heretofore engaged, and we are applying that service and that capacity either to fighting in the trenches or in the work which is essential to the support of this fighting force. We are withdrawing 25 per cent of the productive capacity of the country from its usual service. It is possible, to some extent, to diminish the use of the necessities, and, to a large extent, to do away with the luxuries. But granting this, we are still facing a shortage representing the difference between what we may save by enforced economy, and the awful destruction and waste of war.

Thirty million workers must produce as much or more than forty million workers have heretofore produced. This means that a service equal to ten million men in ordinary times must be supplied from some source or else the people who have heretofore consumed the product of the ten million workers must be in want. How can this deficiency be met? There

are four ways and four ways only. First, that our people shall deny themselves one-fourth of the products which they have heretofore consumed. Second, that ten million additional women shall undertake more or less manual labor. Third, that the laboring people of this country shall work ten hours a day. Fourth, that ten million laborers shall be imported from other countries from which they may be obtained to fill up this gap in the productive capacity of the country. Which shall it be? MINING CONGRESS JOURNAL advocates the greatest economy in the use of all these products. So far as it is possible, this shortage must be met by greater economy. Second, MINING CONGRESS JOURNAL advocates an increase in the hours of service as altogether preferable to either requiring women to do this extra work or the importation of labor from China, probably the only source from which we can hope today to draw a foreign labor supply. Labor leaders should face this situation. The writer believes in the eight-hour day without qualification; but he believes in time of war that this liberty should be cheerfully surrendered to meet its requirements. Unless the productive capacity of the nation can be increased sufficiently to make up the waste which is now being created by war, by the increased capacity of our own workmen, we shall be forced to import sufficient labor to meet these requirements.

This is an important question, and one which relates directly to the great issue before which all others must take second place.

A BUSINESS SUGGESTION

The American people are being treated to some very interesting inside views of conditions in Germany as viewed by Ex-Ambassador James W. Gerard, during his official stay in that country. In discussing the industrial situation Mr. Gerard makes the following comment, which is well worthy of the careful consideration of the American people:

A suggestion—Why not start a great governmental chemical school or give protection for a certain number of years to dyestuffs, medicine, chemical and cyanide materials? All these industries are run here by the trustiest trusts that ever trusted and by their methods keep American manufacturers from starting the business. A Congressman represens one of the best firms, in his statement that it is impossible to start such manufactures in America. Our annual tribute to these trusts is enormous. One dyestuff company here employs over 500 chemists. Only big or protected business can compete. This war has shown that we should not be dependent on other countries for so many manufactures.

The present would seem to be the most opportune time for the development of every industry for which this country possesses the raw material. The present shortage of manganese, pyrite, chrome and other minerals points unmistakably to the necessity in war times, and to the importance in times of peace of the utilization of our own resources in manufacturing those goods which are essential to the nation's progress. Just at this time the shipping now being used in the annual importation of more than 2,000,000 tons of ores from Brazil and Spain, and other points should and must be released for the transportation of troops and supplies to the front and the country finds itself with its own natural resources undeveloped and with the necessity of developing these by a most expensive process because of the need of haste in the development.

Ambassador Gerard's suggestion is important at all times and vital at this time. We trust the American people will put this suggestion into active practice.

BREEDERS OF CLASS HATRED

Muckraking journals of the Hearst type find much satisfaction in their continued criticisms of what they term the injustice of conscripting men to go into the army, while not conscripting wealth. The Washington Times says:

Government conscripts men on its own terms. The men risk everything and get nothing. The Government politely begs for money on the financier's terms, raising the rate of interest as required. The financiers get absolute security on their money, and risk nothing. Which would you rather be

in the United States, an ordinary man or any ordinary dollar as regards safety?

It is estimated that the War Excess Profits Tax law will yield to the Government approximately $3,500,000,000. It takes from 20 to 60 per cent of the profits in excess of those gained in a pre-war period, limited to from 7 to 9 per cent. The greater part of this tax will come from the very wealthy men of the country and will apply first to corporations and again to the dividends as they pass into the hands of individual stockholders. In many instances this tax will amount to above 80 per cent of the total net profits earned by individuals during the year 1917. We have yet to hear a single individual object to the payment of this enormous tax. The Government finds no trouble conscripting from the wealth of the country the greater part. of its earnings. It must not be lost sight of that the present tax is but a part of the expense of the war and that the amount for which we are issuing bonds must sooner or later be met by the same capitalist to which The Washington Times so sneeringly refers. It has been stated that it costs the United States fourteen times as much money to maintain a soldier at the front as Germany pays for the same service. We doubt the truth of this statement, but whatever it costs, the patriotic people at home are going to bear the burden without complaint and take off their hats in reverence to the boys in the trenches who are bearing the real brunt of the battle. It may be that The Washington Times and its sympathizers will some day learn that the American people are patriotic and loyal. The Kaiser is not the only one who has yet to learn his lesson.

THE OIL SHALE RESOURCES OF THE WEST

Necessity is the mother of invention. It also is the mother of the discovery of materials as well as of plans for their utilization. The importance of petroleum to the industrial world led to the discovery of the petroleum values in the oil shale deposits of large areas, hitherto considered barren and worthless. With the appreciation of this wonderful oil wealth comes the question as to how the Government shall control its interest in these lands so as to best serve the public interest.

Oil shale development will require enormous investment, long time operation, and a large acreage in order that a profit may be made upon the enterprise at a price for the product which can bring it in fair competition with petroleum developed from other sources. Congress now has before it another public lands question which a few years ago was scarcely dreamed of. Shall the Government part with its interest in these lands by patent to individuals, or shall they be held and their operation permitted under a leasing system? The present laws governing mining locations are not at all adapted to the location of oil shale lands. It has been assumed that these lands could properly be located under the Placer Mining Laws and thousands of acres have been so appropriated. Large sums of money are being spent by these locators in discovering the best methods of treatment, with a view to the erection of plants of sufficient size to justify profitable production.

The present thought is that no plant can be constructed of sufficient size to be economicaly profitable for a less cost than a half million dollars. It is hardly to be expected that such a plant will be constructed upon leased ground. It is very unfortunate that the question of oil shale land titles had not been anticipated in order that whatever system shall be adopted might be uniform as applied to all oil shale locations.

At this time a considerable part of the oil shale lands have been filed upon under the Placer Mining Laws. Large areas have been withdrawn for governmental uses. No system of storage is so well adapted to provide for the future, nor to be compared with the oil shale deposits. It is equally true that no system of land tenure should be adopted which requires development in advance of that period during which the oil itself is essential to public uses. A leasing

system, requiring immediate and continuous development might result in the production of oil in advance of public necessities, and a competitive price which would lead to waste in its use. It is therefore essential if these lands are to be appropriated and these reserves held for future use, that it shall be upon some plan which does not require immediate development, but that whatever charge is made for holding such land shall be made to insure to the benefit of the locality in which the lands are situated. In other words, it would seem better that these lands be owned by individuals and be subject to the taxing power of the state, than that they should be under a leasing system requiring development in advance of public requirement.

A very serious question of public policy is apparent even to those men who believe that the Federal Government should mantain control over its western public lands. MINING CONGRESS JOURNAL hopes that this matter may receive the most careful consideration, and that a system may be adopted which will best serve the interest of the public as a whole. Uncertainty of title will lead to a sea of litigation and prevent development. An immediate and pressing need exists for a federal declaration which will settle, as far as may be, the legal questions concerning title to the oil shale lands of the West.

LABOR'S WEAPON OF DEFENSE

Self defense is the first law of nature. A labor strike is labor's weapon of self defense. The right to use this weapon by the individual is undeniable where the rights of the individual are encroached upon. The right to take or imperil the life of another only exists where an equal or greater danger is imminent to the life of the one exercising this right. The right of an individual to act by himself is entirely distinct and may exist when the right of the members of an organized body to act together may not exist. Under the common law an agreement to do an unlawful act was made a conspiracy. When the existence of society is threatened by the combined action of any considerable portion of its membership, such conspiracy, if effective, becomes a capital offense. This principle is best illustrated in the case of the soldier whose every act of insubordination is punished with the most severe penalties. During a war every loyal citizen is a soldier, in effect if not in discipline, and no act which tends to weaken the fighting force of his country should be tolerated.

THE SILVER SITUATION

Very important financial legislation has commanded the attention of Congress to the exclusion of consideration of the plan to make available the silver reserve in the United States Treasury for the settlement of foregn trade balances. Congress has moved with extraordinary rapidity considering the enormity of the problems which it has had under consideration.

Before this issue shall reach our readers, Senator Pittman will have introduced in the Senate a bill providing for the release of two hundred and fifty million silver dollars now held in the United States Treasury as security for silver certificates in order that bullion may be made available to pay the government's bills to countries which will accept silver, and thus retain in our Treasury the gold upon which an increasing burden of credit now rests.

Senator Pittman's bill will provide that the silver thus released shall be replaced by the Government by contracts for future delivery of silver at $1 per ounce, a tacit agreement having been secured from the silver producers to contract on this basis. Silver producers generally believe that the law of supply and demand will stimulate the price to a point largely in excess of $1 per ounce, but as a patriotic duty under present conditions have been willing to consent to a fixed price in order that the Government's needs may be cared for. This plan was endorsed by a resolution adopted by the conference of delegates from various states in attendance at the

January convention of the Colorado Chapter of the American Mining Congress, and was also approved by the Wyoming Chapter at a later convention held at Casper.

It seems very important that this legislation shall receive prompt consideration, and it is believed that the bill will be favorably considered.

EMBARGOES AND INDUSTRIAL INEFFICIENCY

The wonderfully efficient machinery of production, transportation, and exchange, has been developed by the best business brains and experience of the country. Interferences with its orderly conduct which are thought to be and, perhaps, may be necessary during the war times, force a realization of the value of this efficient organization. The illustration of the loss of a great battle because of the lack of a horse shoe nail forcibly applies to the present situation. Freight embargoes, intended to better the situation, have resulted in complex and indirect ways in hampering business production, and frequently creating a worse dilemma than the freight embargo was created to prevent. The files of this office furnish hundreds of illustrations in which great business enterprises have been crippled because an embargo has been placed upon the shipment of material without which the plant cannot operate. The embargo against less than carload shipments of machinery has greatly hampered, and, in many instances, entirely shut down coal mining plants which could not operate without the replacement of certain parts of its equipment. Machinery which has worn out or broken down, and which constitutes but a small part of a carload shipment, may be absolutely necessary to the operation of the mine. The MINING CONGRESS JOURNAL does not desire to criticize those who have these matters in charge. Its requests for relief have been met with the utmost courtesy, and an earnest desire to help. The enormous organization which is necessary to care for the government business at this time cannot be created in a day. Literally, thousands of men and women with the best brains and experience in their respective lines are now in Washington making their best effort to speed up the government work, and frequently these men are only in each other's way in that an order intended to right one grievance has the effect of putting out of joint some other essential condition.

For instance, shipments of tungsten and molybdenum concentrates by the Empire Smelting and Refining Co., of Deming, N. M., to Pittsburgh for use by the steel companies in tempering and hardening the steel that goes into guns for the Government, cannot be shipped east of the Illinois state line because an embargo has been placed on all other articles than cattle, coal, coke, peroleum, and foodstuffs for home consumption. Undoubtedly this order represents the exercise of the best judgment possible. Notwithstanding these good intentions, the Pittsburgh plant wholly dependent upon the New Mexico production might, because of its lack of hardening alloys, be unable to construct the guns needed by our armies at the front, and be the cause of the loss of a great battle in the greatest war in the world's history, "All for the want of a horseshoe nail."

THE FERRIS BILL

The report of the House Committee on Public Lands on the Ferris bill is awaited with much interest. The Walsh-Pittman Bill, S. 2812, covering this subject was passed by the Senate January 7, 1918, and the report of the House Public Lands Committee will be considered by the House as a substitute for the Walsh-Pittman bill. This bill provides that lands may go to patent under the existing law or may be leased under the provision of the bill. The American Mining Congress congratulates the West upon the fact that its protest against a Federal leasing bill has secured a recognition of the principle of private ownership, and that the provisions controlling these leases have been made so liberal

and practical under the present bill. It is hoped that the oil relief provisions will be such as to protect the Government and, at the same time, do full justice to every oil claimant who, in good faith, has undertaken to develop the oil resources upont he public domain.

A SHREWD GAME OF LABOR POLITICS

Who can conceive of men in the second or third line of defense at the front laying down their tools with the battle raging on the first firing line and its result depending upon the work that is being done by those in the rear? What soldier knows anything about an 8-hour day? Does the glory of service make sufficient recompense for the difference between $30 a month and a 24-hour day, and $150 a month and an 8-hour day? There should be a marked distinction between the credit given to the soldier who risks his life and endures the bitter hardships of war and the credit given to anyone at home, no matter how much he may do.

At the annual meeting of the members of the American Mining Congress in New York City, in November, President Walter Douglas insisted that no declaration should be adopted looking to the change of any labor conditions which existed prior to the war. This position was representative of the employers generally throughout the country. On the other hand, hundreds of different enterprises have been forced to adopt the closed shop plan since it was tentatively agreed that pre-war conditions should be maintained during the war period as to all disputes between labor and capital. If the writer is any judge of the situation, the game of labor politics is being played with great effect under cover of a barrage of pretended loyalty. We do not question the intense loyalty of the great body of American workmen, but we do seriously question the labor leaders who are taking advantage of the situation to establish the closed shop at every possible point.

ABOUT SILVER PRODUCTION

The history of the world's producton of silver is a good illustration of the fact that price is the ultimate dictator of production.

During the whole history of the world the production of silver has been approximately fifteen and one-half to sixteen ounces of silver to one of gold. In the days of high gold values by which is meant that period when labor, machinery and supplies were comparatively cheap, silver production expanded until the production was on the ratio of twenty-two and one-half ounces of silver to one of gold.

This over-production, while it had but a nominal influence upon the comparative ratio of the total world stores of gold and silver, resulted in governmental action which destroyed the parity and under the later conditions the production of silver dropped to its present production ratio of about seven and one-half ounces of silver to one of gold.

The largest silver producer in this country is the Amalgamated Copper Company, by which silver is produced only as a by-product, in fact a very large part of the silver production in the United States is produced as a by-product upon which the price of silver has little influence.

Were is not for this fact, the effectiveness of the statement that price is the final dictator of production would show itself more effectually by a reduction of silver production very much below the present ratio. The probable increasing demand for the use of silver as a money metal in silver-using countries will undoubtedly have a marked influence in restoring silver to its old time value.

OIL DEVELOPMENT

The need for a greater development of the oil supply of the United States is greatly intensified by the fact that rich oil fields abroad have recently fallen under control of Germany. While this advantage may be temporary, it forces the Allies to depend more largely upon the supply of the United States and Mexico,

while it gives to the Central Powers an adequate supply. Russia's production for the last few years has approximated 70,000,000 barrels. Last year the United States produced 68 per cent of the total world production of 516,000,000 barrels. Mexico's production in 1917 was estimated to be 60,000,000 barrels. The present high cost of labor and supplies, added to the very great difficulty in securing oil well casing, has almost brought to a standstill the development of new oil fields. Not only have the steel mills been called upon to manufacture materials directly connected with war purposes, but even where oil well casing has been available, difficulty has been experienced in securing transportation for the oil well casing to the fields of operation. The uncertainty growing out of the War Excess Profits Tax law has also had its influence in preventing development work. Production is not keeping pace with consumption and as the result the reserve stocks of oil in the country are gradually diminishing. The uncertainty growing out of probable Federal legislation affecting the title to the oil lands in the public lands states, has also had its influence in preventing development work. While there is no immediate danger, there is great need that every effort shall be made looking to the stimulation of the development of new oil territory.

THE MINERAL CONTROL BILL

A bill to stimulate the production of various rare minerals has been under consideration by the House Committee on Mines and Mining. Hearings were conducted for several days, and it is expected that the proposed bill will be revised and introduced by Congressman Foster at a very early day.

A synopsis of the hearings will be found upon another page of this issue of the MINING CONGRESS JOURNAL.

We have little to add to the editorial in the March issue entitled "Federal Control of Metallic Minerals." The House Committee on Mines and Mining fully intends to so word the bill that it shall apply only to the rare minerals therein specified, and that the right to commandeer any mine or plant shall apply only to idle mines or plants or those which are but inadequately operated. The necessity of legislation of this character is very great for the stimulation of the production of certain minerals which are being imported from South America, Spain, and other points. More than two million tons of manganese, pyrites and chrome now being imported are absolutely essential to the continuance of our industries. In fact, there will be an increased demand for pyrites from which sulphuric acid is made because of the increased demand for explosives for which sulphuric acid is required. The ships now engaged in importing these minerals should be at once released from that service and utilized in transporting our troops and munitions of war and food to France.

The steel industry cannot operate except the shortage thus created shall be made up from some other source. About eight hundred thousand tons of manganese ores are required each year to maintain the steel industry, and for other necessary uses in this country. It is estimated that about one hundred and twenty-five thousand tons have been produced in the past, and that an importation of at least six hundred thousand tons is essential. To produce this from the low grade ores of this country is one of the principle purposes of this legislation. MINING CONGRESS JOURNAL reiterates its statement of last month:

"If the government is in need of manganese ores the guarantee of a sufficient price to justify production will immediately put in motion the best possible machinery, i. e., individual capital and personal supervision, charged with the necessity of exercising every economy and the greatest efficiency in order to make the greatest profit upon the investment. These are the means through which production upon a commercial basis may be assured."

MINING CONGRESS JOURNAL fully believes that some prompt and efficient method should be quickly made available in order to meet this world exigency at this time. It will endorse and approve and lend its influence in securing the adoption of any plan calculated to meet

these requirements. A poor plan, well followed, is altogether better than a better plan which is not put into effect. MINING CONGRESS JOURNAL still believes that no new agency is necessary to accomplish these purposes, and that the Interior Department which has had to do with the development of mining resources, which has, within its various bureaus, all the available information concerning these resources and the best known methods of production and treatment, is in a better position to stimulate a private enterprise to accomplish these ends than any new agency which can possibly be selected.

MINERAL IMPORTS REDUCED TO LESSEN STRAIN ON SHIPPING

Under the power conferred upon him by the Trading with the Enemy Act, the President, on February 14, 1918, issued a proclamation which required an import license for all articles from all countries. The chief purpose of this was to enable this Government to eliminate less essential imports to the end that tonnage might be conserved, and additional shipping be made available for the transportation of troops and supplies to Europe. Similar steps have been found necessary by the Allies, and England, particularly, has found it necessary to impose most drastic import restrictions in order to most effectively devote her shipping to the successful prosecution of the war.

For many weeks, a corps of specialists has been giving the closest study as to the manner in which this import restriction would be exercised, so that the greatest saving could be accomplished with the least injury to our ordinary commercial activities. The question was still further complicated by the earnest desire of this Government to affect, as little as possible, the industry and commerce of the countries associated with us in the war, and to work as little hardship, as possible, to neutrals. The question involves close cooperation with the Shipping Board and consultation with the State Department, the Treasury Department, the Food Administration, and other branches of the Government, as well as the War Trade Board, within whose province falls the actual administration of the control. As a result of these deliberations, the War Trade Board, through its Bureau of Imports, publishes the first list of restricted imports.

Applications for license to import the articles appearing on the list will not be granted, except under the following circumstances:

1. When the articles mentioned are actually shipped from abroad prior to April 15, 1918.

2. When coming by rail from Mexico or Canada when the goods in question originated in those countries or in others from which such goods are being licensed for import.

3. When coming as a return cargo from European points and then only (*a*) when coming from a convenient port, (*b*) when loaded without delay, and (*c*) when the importation from Europe is not specifically prohibited in said list.

In the future, therefore, applicants for licenses to import articles mentioned in the list will be obliged to show, in their applications, the existence of such of the facts above outlined as will warrant the granting of such licenses. In the case of shipments from European points, the most satisfactory evidence will be proof that shipping space has been actually engaged. The present form of application for import license will generally be found adequate for this purpose, and where this is not found to be the case, a letter setting forth the additional facts should accompany such application.

The United States consuls have been instructed not to issue consular invoices on and after April 15, 1918, for the articles mentioned in the list without first being furnished with the number of the import license or being given other evidence of the issuance of such license. Shipping agencies are also advised not to accept for shipment consignments of the articles mentioned in the list without similar evidence of the issuance of the import license. This applies only to the articles mentioned in the list. No proof of the issuance of the import license for articles not so mentioned is to be required either by consuls before issuing consular invoices, or shipping agencies in accepting freight. It will devolve upon importers, therefore, to advise their shipper abroad by letter or cable, of the number of their import license so that such shipper will be able to furnish the same to the consuls and the shipping agencies. This will mean that importers must be diligent in applying for import licenses a sufficient time in advance of the shipment so that the number of the import license may be communicated abroad in ample time.

The articles on the list, which affect the mining industry directly, are:

Asbestos, all acids, muriato of ammonia, all coal-tar distillates except synthetic indigo, all salts of soda except nitrate of soda and cyanide of soda, cryolite, except not to exceed 2,000 long tons for the year 1918, explosives, except fulminates and gun powder, fluorspar, infusorial and diatomaceous earth and Tripoli, nickel, plumbago or graphite (until July 1, 1918, thereafter not exceeding 5,000 long tons for remainder of 1918), pyrites (except not exceeding 125,000 long tons to October 1, 1918), zinc.

MINERAL CONTROL BILL DISCUSSED AT LENGTH

House Committee on Mines and Mining Holds Extended Hearings—Most of the Arguments Favor the Passage of Such a Measure

After extended hearings the Committee on Mines and Mining of the House of Representatives is now whipping into shape for introduction a bill providing for a mineral administration modeled along the lines of the food control act. The need for the bill, the objections raised to it and a general survey of the situation may be gleaned from the following extracts from representative testimony presented before Dr. Foster's committee.

An excellent idea of the objects of the bill may be secured from a perusal of the testimony of Dr. George Otis Smith, Director of the United States Geological Survey. His testimony follows:

Dr. Smith. The real matter before us is the question of speeding up mineral production in the United States. When I speak of that I do not want for a moment to give the impression that the mineral industry is in any sense a slacker under present conditions. The mineral industry, as many of you from mining states know, has met the war time test in a remarkable way. Since the war began the country's production of the principal metals, the really essential metals, such as aluminum and zinc, has doubled in output in those two items. In the case of copper the production has increased 50 per cent; in lead about 40 per cent, and in iron 25 per cent; and the same is true of coal. The production of last year as compared with the production of 1914, was 25 per cent in excess. I think, possibly, we fail to recognize how much that really means. That percentage of increase in those six metals that I have mentioned means an increase in tonnage of nearly 10,000,000 tons. That load was thrown on the railroads, for instance, last year, as compared with the normal traffic of the years immediately preceding the war.

Of course if we come to express that in tonnage of ore it is several times the 10,000,000 tons that I mentioned. Then, if we add to that the big increase in coal you will see to what an extent the output of the mining industry as a whole has increased. That is the way I think that we can fairly express the response of the mining industry to this war time test

The Government activity in connection with the mineral industry has been along the line of activity on the part of the various specialists in the Interior Department; the metallurgists of the Bureau of Mines have conducted their investigations in aid of this or that part of the industry, and the Geological Survey has been active hunting for new supplies, and where these new supplies have been found giving such aid as is possible to those intending the development. It has been in many cases a hurry-up service that has been rendered, and there has not been any special recognition, that is, by legislation, in reality beyond that which was in force before the war began.

In the matter of statistics the Geological Survey, as you know, for nearly 40 years has been gathering the statistics of production of the mineral industry, publishing them each year, annual statistics, and just as production has had to speed up we have had to speed up in the matter of statistics for the use of the war boards, the producing agents of this and the allied countries, annual statistics of production for the use of the Shipping Board, the War Trade Board and the War Industries Board. They want not simply the figures of last year, but the figures of last quarter and of last month; and we therefore began to supplement our annual inventories, annual census, of the mineral industry, with quarterly figures on such subjects as manganese, magnesite, brogan, mercury and felspar. We are getting those figures each quarter.

We began a year ago to get coal figures by the month, and so last year we began to get monthly returns on petroleum and at the present time we are also getting monthly reports on sulphur, asphalt, antimony, secondary aluminum and others.

Mr. London. How is the statistical data obtained?

Dr. Smith. By correspondence with the producers; and we are going even further, in order to aid the governmental boards, and first of all the Fuel Administration, we are getting weekly statistics on coal, and then on the metals, copper, zinc, lead and aluminum. Those weekly statistics, for instance, on the principal metals are secured from the large refiners, and we have confidential information that can be put at the disposal of these buyers, showing just what was the production last week. The figures are coming in this morning by telegraph of the production of last week, up to Saturday night of copper, lead and zinc, for instance; the stocks on hand Saturday night. Also we have the commitment list which must be placed against those stocks up to the present time, the commitments up to June 30.

Those statistics are available, I say, in order that the purchasers can place their orders where they can be filled. In the case of zinc we have some five grades; in the case of lead, two grades. I believe of the lead itself as well as the lead containing antimony. The same is true in regard to aluminum and copper, and also with reference to virgin aluminum we have also monthly figures, and also figures on the production of secondary aluminum, from the scraps and aluminum waste which is remelted and placed upon the market.

I mention these details to show you how large the government interest in all these metals is.

It is up to the mineral industry to supply our Government and the other governments with raw materials. What I have said in regard to the expansion and output of metals is simply an index to the industrial expansion of the country that you are all familiar with, and that expansion, of course, that has been made so prominent in the public press has involved the large consumption of fuel. And yet last year the fuel, the soft coal, the steam coal production of the country, was 8 per cent higher than ever before, 25 per cent higher than before the war.

Mr. Welling. Has the consumption of these metals kept pace with the demand for the metals, lead, copper, zinc, etc., and those other very essential minerals?

Dr. Smith. In our principal metals, such as iron, aluminum, lead, zinc and copper, we are producing an excess over our domestic requirements, for, as you know we are exporting the raw metals in considerable amounts, and in the case of some of these minor metals, so-called, not because they are of minor importance, but because they are of minor quantity, I will give you the figures in just a few minutes to show to what extent we are meeting the demands of consumption.

Under the changed conditions which began in 1914 we have realized certain deficiencies in our domestic supplies. We have been cut off from the world to some extent in the matter of imports, and the world, on the other hand, has been making larger demands directly or indirectly upon us. Of course the potash case is the one that has been before us since 1912, before the war. Now in those deficiencies there is some amount of encouragement, I think. In the case of potash, before the war we produced practically none; we are now meeting our requirements to the 10 per cent of our nominal requirements by domestic production. Take such a material as magnesite; we have increased the production of magnesite from 10,000 to 310,000 tons last year.

Mr. Garland. You met all the requirements in that?

Mr. Smith. In the case of magnesite I figure 99 per cent of our requirements are met by the domestic supply, and fortunately that can be increased by nearly developed deposits in Washington and California. Another case that might be cited is one you will hear very much of in this bill, Mr. Chairman, that of manganese. To show how we have speeded up on manganese perhaps the best statement that I can make is that at the present time we are mining more high grade manganese, nearly twice as much high grade manganese in a single week, as we did in the whole year, 1914.

Mr. Taylor. Where does it mostly come from, and what is it principally used for?

Mr. Smith. Its principal use is in the metallurgy of steel. The largest producer of high grade manganese last year was Montana. In the lower grade Minnesota stood first and Colorado second, if I remember the figures. In the higher grade, which is the grade of manganese that is brought into this country in large quantities from Brazil, and for that reason is an acute problem before the Shipping Board. Montana and California, Arizona, Arkansas and Virginia were the leading producers, and this coming year Nevada is going to be a large producer.

Mr. London. What are the essential qualities of manganese?

Mr. Smith. The high contents, of course, is the manganese itself, but an alloy content of silica and iron and phosphorus.

The Chairman. How much do you import of manganese?

Mr. Smith. You will have better authorities on manganese before the week is over, probably, but it is pretty hard to express the exact tonnage of the imports last year. Mr. White probably can give you the exact figures.

Mr. White. The total imports of high grade manganese ore in 1917 was 630,000 long tons. In addition, about 40,000 tons of the alloy, ferro-manganese was imported from England, being the equivalent of about 100,000 tons additional ore.

Mr. Smith. Our own production of the same quality of ore, that containing over 40 per cent of the metal, was 113,734 tons. Those figures are subject to revision upward, as there are some returns not wholly received. However, at the present time it is figured we are producing at the rate of 20,000 tons a month. Our estimate for the six months is 120,000 tons, or essentally the equivalent of the total for last year.

Mr. Welling. How is the production of this metal as compared with the needs. Are we keeping pace with our needs?

Mr. Smith. Last year we produced something like 23 per cent of our needs; we are doing much better than that now, but that seems to be a fair expression of the extent to which we are meeting our requirements.

The Chairman. So we are importing about 75 per cent.

Mr. Smith. In one form or another. That is for 1917. I would not say what we are producing now.

Mr. White. Of the high grade ore we imported last year at least five-sixths, producing about 100,000 tons and importing about 750,000.

The Chairman. As Secretary Lane has arrived we will now hear his statement.

Mr Smith. I think I might take up the list of minerals in which we realize that this country has experienced already some deficiency and give some measure of the ex-

tent to which the production of those particular minerals need stimulating. Of course it is difficult to give an exact measure because the requirements of 1918 are not the requirements of 1917. I can only speak definitely, of course, regarding last year. Taking the records of last year and expressing the production in terms of consumption, I find the figures somewhat as follows:

In the case of antimony we produced from domestic ores only about 10 per cent of what we needed, so I would put antimony at 10.

In the case of arsenic the corresponding figure would be 60; we came nearer our requirements with that.

In the case of bromine we have apparently met requirements, and we can express the production as 100 per cent there. We know the governmnet requirements for military purposes promise to be several times this year what they were last year, so we must not let this figure of 100 per cent please us too much because there is the probability that we are facing a deficit in the production of bromine.

Our production of 42,000 tons of chromium last year met about 37 per cent of the requirements. We hope to increase that production this year to about 50,000 tons.

In the matter of the abrasives, corundum and emery, the requirements were more nearly met last year, say, 90 per cent, and yet that 10 per cent that was lacking was of the highest grade of abrasive of emery which has hitherto been imported from Turkey and the deficit was a serious one because it was the grade of emery that is especially needed in the manufacture of optical glass.

In the matter of graphite the domestic supply furnished 25 per cent of our consumption, but there again is the graphite which we especially need in connection with the expansion of our metal industry, namely, the graphite that is used in the making of crucibles, our American product last year was only about 11 per cent of the crucible grade of graphite. There is where we hope to stimulate production in the southeastern states.

I have already mentioned magnesite, where our home production was about 99 per cent; and manganese was about 23 per cent. I may mention in this connection the record that we have made in the matter of magnesium, the metal. Formerly there was no production in this country of magnesium, and the supply from abroad being cut off a supply has been developed in this country, and the 1917 figures are very satisfactory, 115,800 tons of this metal, a very light metal and that means considerable quantity, and with the increased production there has been a corresponding decrease of the price, from something like $5 a pound to $2 or less a pound.

Molybdenum, another steel hardening metal; our production can be stated at something over 100 in that, because we export molybdenum, largely because that is a steel hardening metal more in favor with the English and the French than it is with our own steel makers.

In the matter of mercury we have increased our production until we are exporting it, and the corresponding figure indicates that our productive capacity is 120.

In the platinum metals I would say to Mr. Taylor that while the precious metals are not included in this bill, something more precious than the precious metals is included, namely, that platinum metals, and, as Secretary Lane stated, there is where we find a real deficit. Our own home supply last year was only about 13 per cent of platinum and the allied metals.

In the matter of pyrite last year our home production was 33 per cent; potash, as I have already stated, 10 per cent.

In the case of sulphur, which to some degree supplements the pyrite, although the two are not of course absolutely interchangeable. In the manufacture of sulphuric acid we are self-sufficient, to use Secretary Lane's expression; 105 is the figure for sulphur.

In tin, on the other hand, we produced only 1½ per cent of our requirements, mostly coming from Alaska, as stated by Secretary Lane.

In tungsten our production was 65 per cent.

As to vanadium it is hard to give a figure because there again we are not large users, but I think we can safely say that we produce more than we consume.

Mica I omitted to mention, and mica is a mineral which is used especially in connection with electrical apparatus. Our production was 38 per cent of the consumption, but there again I must qualify the statement because there are certain grades of mica that are especially adapted for special uses that come almost wholly from outside the country.

The Chairman. Where do we get that?

Mr. Smith. Some from Canada and some from India.

That in a general way expresses the list of deficiencies which you will notice is almost exactly the list which you have incorporated either in this draft of the bill or some additional minerals mentioned by Secretary Lane in his report.

Mr. Smith. Of course there have been springing up certain infant industries and I think the real reason for the legislation that is proposed comes from the fact that these infant industries are to a very large extent orphan industries. They are under the care of no part of the governmental organization as now constituted and while in the Interior Department we have been rendering as much aid as we could to these

infant industries, our endeavor has not been altogether satisfactory because there are too many things that we saw ought to be done that we could not do. I do not think I am straining the figure I have used of infant industries or orphan industries when I say we have been called upon to play the part of nurse even to the extent, Mr. Chairman, of receiving a telegram at 2 o'clock in the morning from an manganese operator asking that the embargo be lifted on his ore; and we have acted as a go-between by reason of being in touch with these operators, from the fact that we get our statistics from them and are in correspondence with them, and they have appealed to us for cars, for the lifting of the embargo, for securing of coal supply, for helping them out in their labor problems, and of course all we could do would be to act for them just as a Congressman would act and run errands by taking their requests over to the Railroad Administration or the Fuel Administration, or the Car Service Committee, or the Department of Labor, and being a friend here in Washington. It has been satisfactory in that we have received the thanks of the men that we have tried to help, but there has been all the time apparent the lack of organization to do this work effectively and we have felt the responsibility without having the authority.

Mr. London. The situation seems to be that large capital has not attempted to organize the small industries, because there is no profit.

Mr. Smith. It is not a wholesale business. That may be a fair statement of it.

Mr. London. And now the aid of the Government is to be invoked to encourage men of small means to undertake the development of these industries. Is that the idea of the bill?

Mr. Smith. It seems to me that they need to have some assurance as to the future.

Mr. Garland. Not necessarily the men of small means.

Mr. Smith. Men of large means or corporations with considerable capital, before undertaking the development of large mining property, whether it be manganese in Montana, or copper, which people are developing, or pyrites, or the fertilizer interests, or any of these other properties they need to know that they are going to have a market at a living price next year as well as next month and they need a certain amount of stabilizing.

Mr. London. So that they would not take any chances with their capital.

Mr. Smith. I think they want at least an even break in developing the enterprise. You gentlemen of this committee know that there are in the mining industry, especially, enough natural hazards, and it seems to me that this bill is not simply to try to obviate some of those natural hazards but to prevent the injection of man-made risks, and part of that may be secured through assuring the developer of a new property that he is going to have the opportunity to sell his product at a price that may not yield a big profit but that will not incur a sheer loss.

Mr. White. The act terminates as soon as the President determines when the war ceases, but the contracts under the bill may extend for two years from the date of the contracts, guaranteeing the price for that time. Where the act may end, the contracts under it may run for two years from the time they were made.

Mr. Sanders. What protection will these industries have after the close of the war?

Mr. Smith. In many cases I think such a contract guaranteeing what will be essentially a minimum price would be sufficient to encourage a certain amount of development. I do not think the mining man wants to know that he is going to be able to mine his product at a profit for all time, because in many of these deposits there is a limit to the life of the deposit by reason of its size; but he does want to know that the rules of the game are not going to be changed on him just as soon as he is really involved in the development of his plant.

Mr. Sanders. Do you think at the end of two years from that time it would be self-sustaining without any legislation of any kind?

Mr. Smith. I really believe some of these industries might be considered as self-sustaining at the present time without such a guarantee. I think in a general way that those who it tends to help will be self-sustaining. I do not understand that the purpose of this bill is to insure production through all time at a loss to the consumer.

The Chairman. Nor is it intended in this bill as you state, that all the metals enumerated are to be guaranteed a price, but there may be some metal production of which it may be essential to stimulate, and in those cases it might be necessary that the Government should say, "We will pay a certain price for these metals for a certain time, in order to increase the output."

Mr. Sanders. If at the end of two years, and after the war, it should be found out by Congress that they really needed further assistance it might be obtained from some other sort of legislation.

The Chairman. That is possible, but not contemplated.

Mr. Garland. It provides in this section that the President might proclaim an extra import duty. This bill is simply to do what the Republican protective tariff bill has been doing, taking care of infant industries.

Mr. London. Do you want to condemn the bill in advance?

Mr. Garland. I would not condemn the

bill because some capitalist would engage in the making of this effort.

Mr. Smith. I think in the same section to which you refer is another purpose that should not be overlooked, and that is the need of protecting the consumer as well as protecting the producer. In many of these enumerated minerals there are those in which under the best circumstances the quantity which will be found available will not be sufficient to meet every demand, and, whether this quantity of domestic production applies to what may be possible under present conditions or future conditions, the import of that quantity will not be sufficient. Then it is a matter of national concern that the supply should not be monopolized by one consumer, or by a small group of consumers. It is just as important that the brass manufacturers get graphite for crucibles as for the steel manufacturers, and so you will find on page 15 reference to the necessity of regulating the distribution of some of these articles. The need of that is self evident. I simply call your attention to the fact that the user is protected as well as the producer.

Mr. Taylor. This bill appropriates $50,000,000 to carry out its provisions and $1,000,000 to be available within the first year?

Mr. Smith. Mr. Taylor, that is an important part of the bill, doubtless, but it is not a matter that I have given attenion to.

Mr. Taylor. What does it do in regard to the quantity of territory that a man can take in negotiations with the Government?

Mr. Smith. I do not understand that this is a public land measure at all.

Mr. Taylor. Supposing a man is going out to try to work up pyrite or tungsten, or sulphur, or molybdenum?

Mr. Smith. He would come under the mining laws, under the public domain.

Mr. Taylor. Does this affect the placer law?

Mr. Smith. I do not understand that it touches a man operating under that.

Mr. Taylor. Does it affect his getting tenancy of the land?

The Chairman. What is the license for?

Mr. Smith. Just the same you have licenses for the wholesale dealers of food products, or the licenses that are necessary in connection with the Fuel Administration.

Mr. Taylor. Who does it apply to, the fellow that is trying to produce something, or the broker who is dealing in it after it is done?

Mr. Smith. It is to promote production.

Mr. Taylor. Who is the man that it affects?

Mr. Smith. Every man that is trying to add to the material wealth of the nation.

Mr. London. The Government is not to be the sole purchaser of those products?

Mr. Smith. In many cases it may.

Mr. Garland. It may be the sole purchaser if it is necessary to fix the price.

Mr. Taylor. Who is to get this $50,000,000; who is it to go to?

The Chairman. You have got a certain amount of tungsten. The Government says, "We are going to commandeer all the tungsten you have and pay you a certain amount." If they bought you out they would take all the tungsten you have and pay for it.

Mr. Taylor. Can they not do that now?

The Chairman. They may commandeer it, but they cannot buy it in that way.

Mr. Taylor. They can commandeer anything they need.

The Chairman. They might be able to do so under the war power.

Mr. James. Are we producing enough copper and iron to satisfy our own needs and those of the Allies?

Mr. Smith. Yes, sir; of course barring such matters as car shortage and labor shortage and plant breakdown.

Mr. James. As far as production is concerned?

Mr. Smith. Barring anything that is unusual. Of course we have had trouble, but not because the copper was not in the ground, but because the mines were not very fully equipped to mine the copper, and in some cases because the pig copper was not on the cars coming to the eastern seaboard because there was a traffic shortage.

Mr. James. Would that prevent this oil from being held by corporations and prevent others from being robbed?

Mr. Smith. That would be possible but I think that under the provisions of Section 14 there is sufficient to prevent one man getting more than his proportionate part of an article of which there is a limited supply. When I say more than his proportionate part, I mean in comparison with his needs. He may be using that article in the manufacture of munitions of war.

Mr. James. It would prevent a certain number of men getting control of the prior right and getting any price they want?

Mr. Smith. It would prevent them getting control of the market on an article on which there is a shortage.

Mr. Hamlin. It could only be prevented under the bill by the Government buying all the stuff.

Mr. Smith. In some cases, if the Government fixes the price, it might fix it through purchase. The bill gives power to establish rules for distribution, which is equally important with the fixing of the price.

Mr. Garland. They have done the same thing in the case of coal and other articles.

Mr. London. Is there a government agency or any scientific body which makes

it its business to ascertain what is the latent mineral wealth of the country?

Mr. Smith. The Geological Survey has considered that it has Congressional authorization for investigating the mineral resources of the country, and make what might be called an inventory of the undeveloped resources, and that is issued under the title of Mineral Resources of the United States, and discussing the latent wealth as well as developed wealth.

Mr. London. What systematic effort is being made to ascertain that latent wealth? Are the various sections of the country studied with reference to the latent mineral wealth?

Mr. Smith. That is the province of the Geologic mapping of the United States, which has been carried on since our survey began, and even before by other surveys, to determine what there is. Sometimes we have mapped rock bodies that had no value at the time they were mapped, but later were found to have such value, and that work is going on. Of course, under the existing war conditions, we are putting all our efforts on the ores and on these particular metals and these particular mineral substances that are especially needed now, and we have been hunting for platinum and manganese ores, and trying to estimate what there is available.

While we can make estimates that have a certain degree of quantative accuracy with regard to the coal deposits of the country and give you a statement in millions of tons, and we can do somewhat similar work in connection with iron ores, and in less degree with the petroleum deposits, we cannot do that with regard to the deposits of ores, such as zinc, lead and copper, because you must realize it is not only a question of what is in the ground, but what grade of ore can be made available 10 years or 20 years from now. All the time, through the metallurgical advance which is being made, it is possible to get copper from a grade of rock which is lower and lower all the time.

Mr. Hamlin. Coming back to that price fixing proposiion, which I regard as rather important, I beg to call your attention to this statement on page 14 of the bill, "Thereupon the Government of the United States hereby guarantees every producer of these specific necessaries that, upon compliance by him with the regulations prescribed, he shall receive for any necessaries produced in reliance upon this guaranty within the period, not exceeding two years, prescribed in the notice, a price not less than the guaranteed price therefor as fixed pursuant to this section." That is clearly fixing a minimum.

Mr. Smith. That is what is considered the minimum.

Mr. Hamlin. Unquestionably he may get more for it if he can, but that is the minimum.

Now, on page 15, where it gives the President the right to buy stuff in order to hold down the price, it is limited by this provision, undoubtedly, in the first part of the section to the minimum price. The question in my mind was what price would he pay them, unless he simply invoked the power of the Government to commandeer the stuff.

Mr. Smith. The difference on the face of it is the distinction between the ordinary guarantee as in the first part of the section and then the extraordinary action where the President regards it as necessary for the effective prosecution of the war, in the case for instance, of platinum, can fix absolutely the price.

Mr. Hamlin. That is what I doubt, under the wording of the bill. Of course, he can commandeer it whether this bill is passed or not.

Mr. Strong. There is a provision on page 14 that they shall guarantee a minimum price to encourage production, that is, a minimum price for any amount that may be produced, whether it is done to fill government needs or not. Then is not the provision on page 15 to protect the United States Government? They have to pay the minimum price and see that the producer gets it, and that provision is that they may purchase any of these necessaries and resell them or do anything else they want.

Mr. Smith. As an illustration of that, if this country was in the situation that Germany is in, we would want to develop some of the nickle deposits we have, and that would be done by fixing the price and it would be large enough to develop those deposits that under present prices cannot be developed.

Mr. Hamlin. I had in mind the recent experience we had in fixing the price of wheat. We fixed a minimum price of wheat last summer, and I remember very distinctly that Mr. Hoover stated at a meeting where I was present that that was a minimum price. His way of holding down the maximum price was to let the government be the sole purchaser, if necessary, of all the wheat produced.

Mr. London. The largest purchaser?

Mr. Hamlin. The sole purchaser, if necessary. Is not that the only way under this bill that that can be done. It seems to me that we must not get the idea that this bill gives the government the right to step in and buy at this minimum price, unless you so specify in the bill.

Mr. Smith. I think under this provision on page 15 the President could order the buying.

Mr. Hamlin. It gives him the right to do that, but the price is not fixed.

Mr. Smith. He is authorized and empowdered to fix the price. It seems

to me that the need of action along some lines should be just as apparent to us here in Washington as it is, for instance, to the miners out in Arkansas. An appeal was successfully made to the manganese miners in one place in Arkansas to speed up their production, and they agreed to a 10-hour day in order that that district might put out a larger tonnage of manganese ore.

Harry L. Day, of Wallace, Idaho, when he appeared before the committee expressed the opinion that better methods could be used to stabalize values and stimulate production than those provided for in the bill. He emphasized the fact that he had no objection whatever to the provisions looking to the prevention of hoarding and of combinations. He also has no objection to the regulation of distribution as called for in the measure. "A tremendous power is given to an unknown individual in the background," Mr. Day pointed out in voicing his determined objection to the provision regarding the taking over of idle or inefficiently operated mines. Such power, he said, was dangerous.

The fact that the major metals are not enumerated in the bill would not prevent everything in the metallic line coming under the bill as the wording stood at the time of his testimony. He suggested that the language be changed so that the bill would confer only such powers as it pretends to confer.

Mr. Day predicted that Idaho and western Montana could be made to produce the antimony requirements of the country if government contracts were available.

Van H. Manning, director of the Bureau of Mines, contributed the following to the information furnished the Committee:

Minerals furnish the most important materials for munitions. The importance of the following mienrals is far greater than either their tonnage or value would indicate. The two fundamental materials for the production of all modern high-power explosives are nitrate, chiefly as nitric acid, and concentrated sulphuric acid made from pyrite or sulphur. Manganese is the most essential alloy for high grade steel for munitions and important industrial uses. Flake graphite is used for crucibles required in the production of brass and crucible steel. Tin is required for tinplate for utensils and cans for preserving food and for bearing metal. Mercury is used as fulminate to explode cartridges and shells, and is essential for the safe and effective use of all high explosives. Potash is used chiefly for fertilizers with smaller amounts for explosives, soap, glass, and chemicals. Tungsten is an essential alloy for high-speed tool steel. Antimony is required for hardening lead for bullets. Chromite is used to make an alloy for tool steel and as a refractory lining in basic open-hearth steel furnaces. Magnesite is used as a refractory in metallurgical plants. Mica is indispensable as an insulating material in the manufacture of electric apparatus.

Many of the minerals referred to in the bill have been largely imported. Dependence upon foreign sources for mineral supplies may involve the diversion from military service of ship tonnage for the actual import of the minerals themselves; for the movement of fuel, equipment, and supplies to the foreign mines producing these minerals; for the possible transportation of other products which the nations upon whom we depend may exact from us in return for their essential minerals. In view of the uncertainty of such supply, as well as the shipping involved, it is essential that domestic production be stimulated to the utmost.

At the present time every ship that can be spared is needed to extend our military operations. The minerals imported come from many distant sources involving long voyages and delays in loading. The minerals mentioned represent an import of about 2,000,000 long tons per year, three-fourths of which at least can be eliminated in case of extreme necessity. Every additional day spent in the submarine zone is dangerous. In addition to the sacrifice of ships, the importation of bulky minerals congests our ports and exhausts our credit in the purchase of supplies abroad.

We have increased our production very slowly, due to many factors which can and must be remedied. Uncertainty as to the length of the war, fear that sudden return of peace will close down the new mines, no effective guarantee of prices for a reasonable time, and difficulty as to securing labor, fuel, and supplies, have discouraged the producer.

The consumer has not realized that new mine production is usually a matter of at least six months' time; he has depended upon the Government to take care of his needs; he has hesitated to use new materials; his efforts have been largely bent towards urging the necessity of import, without realizing the seriousness of the shipping situation.

If this country is to be assured of an adequate supply of minerals for any possible contingency of war, constructive stimulation of production must be undertaken without delay. This should include not only imported minerals which we can largely produce at home, but in addition, those minerals which we now produce at home but whose production may have to be increased as our military requirements expand.

Antimony.—Antimony is used as an alloy of lead to harden bullets for small arms and shrapnel, as an alloy in type metal for printing, and in bearing metals used to lessen friction. About 23,000 long tons of metal were required in 1917. Over 21,000 tons were imported, two-thirds of which came from China and the rest from Bolivia and Mexico. The principal domestic sources of ore containing antimony are in Nevada, California, Idaho, Washington and Alaska.

Arsenic.—The most important uses of arsenic are for insecticides and wood-killing

compounds, disinfecting, vermin poison, and in glass making. The 1917 requirements was about 10,000 short tons, 40 per cent of which was imported from Mexico and Canada. The United States production comes almost entirely a by-product from smelters.

Bismuth.—The various salts of bismuth are largely used in medicine, particularly for the dressing of wounds, and a small amount is used in type metal. The total amount used is small. Under normal conditions about 100 short tons were imported, but this import has greatly declined since the war. The chief sources of domestic supply is from the electrolytic refining of lead bullion and flue dust.

Bromine.—Bromine is important because of its uses in medicine, chemicals and war gases. The total quantity used is relatively small. The United States production in 1917 was 450 tons. It is produced in connection with the manufacture of salt from natural brines from Michigan, Ohio, and West Virginia.

Chromite.—Chromite is used as the alloy ferro-chromium in the manufacture of special steels for high-speed tools, of automobile axles and springs, locomotive frames and springs, certain parts of ore crushing apparatus, in projectiles, armor plate and cannon linings It is also used as a refractory lining for metallurgical furnaces, and its various salts are used in special leather tanning processes and for chemical colors and dyes. In 1917 the domestic production is estimated at about 42,000 long tons and the import at 72,000 long tons, making a total supply of 114,000 long tons, which is a falling off of about 50,000 tons as compared with 1916. The import comes principally from Rhodesia and New Caledonia. The domestic production has come principally from California and Oregon.

Corundum and Emery.—Corundum and emery are the two most important natural abrasives which have been imported. They are necessary for the grinding of optical glass and special grades of steel for munitions. The best grade of imported emery comes from Greece (Naxos), and corundum from India and Canada. New York is the principal source of domestic emery, and North Carolina of corundum. The production in 1917 was 16,000 short tons and the imports about 2,000 tons.

Graphite.—Graphite is an important war material because of its use in the manufacture of crucibles required in the production of brass, bronze, crucible steel, and various other alloys and metals. Only the flake form is used for this purpose. The amorphous form is less important and is used for foundry facings, paint, lubricants, and lead pencils. In 1917 the domestic production was approximately 3,400 tons of flake graphite and the foreign import about 27,500 tons, making a total supply of about 31,000 tons. The import comes chiefly from Ceylon and Madagascar, the domestic production from Alabama, Pennsylvania, and New York.

Iridium.—Iridium is a metal closely associated with platinum and is used as an alloy to harden platinum for use in contact points for magnetos. The quantity used is very small, but is absolutely essential. Shortage of this metal would be even more serious than a shortage of platinum.

Magnesite.—Magnesite when calcined at high temperatures produces a very dense fire resistant and chemically inactive substance. Its use is chiefly for refractory bricks, as linings for open-hearth steel furnaces, copper converters, reverberatories, electric and other furnaces. In 1915, 186,000 short tons of magnesite were imported, chiefly from Austria and a small domestic production came from California. New deposits were discovered in the State of Washington, and at the present time the product from California and Washington completely meets our requirements, about 310,000 short tons being produced in the United States in 1917.

Manganese.—Manganese is used as an alloy in the manufacture of the greater portion of our high grade steel. A very small quantity is used in dry batteries, glass manufacture and dyes. Manganese is the best known material to produce a dense homogeneous steel free from honey-combing and blow-holes. It is generally added in the form of an alloy of manganese and iron, the high grade material being known as ferro-manganese and the low grade material as spiegeleisen. At the present time, steel industry requirements are from 700,000 to 800,000 long tons per year of high grade ores, besides a large quantity of lower grade ores. In 1917 over 500,000 tons were imported from Brazil, 50,000 tons from India, and about 60,000 tons from the West Indies, and Central America. The domestic production of high grade ore was 114,000 tons. The principal producing districts for high grade ore are Montana, Arizona, California, Arkansas, Virginia, Georgia, Utah and Tennessee. Large quantities of low grade ore come from Minnesota, Colorado, New Mexico, New Jersey. There are many small scattered deposits and the possibilities for large increase in production are very good.

Mercury.—The most important use for mercury is in the manufacture of fulminate for use in caps to explode shells, cartridges, blasting charges, and mines. It is thus essential for the safe and effective use of high explosives for both war and peace purposes. Other uses are in paint to prevent the fouling of ship's bottoms, in the amalgamation process for the recovery of gold and silver, in drugs and for scientific apparatus. The consumption of mercury in the United States is now between a million and three-quarters and two million pounds. While there has been normally some import from Spain and Italy, the United States has also exported mercury. The principal mercury producers are California, Texas and Nevada. The domestic production in 1917 was 36,000 flasks, the imports 5,200 flasks and the exports 11,200 flasks (of 75 lbs. each).

Mica.—Sheet mica finds its most important

use as an insulating material in the manufacture of electrical apparatus such as magnetos, spark plugs, electric light sockets, etc. It is also used in the condensers of nearly all wireless outfits. The total quantity used is from 1,000 to 2,000 tons. Imports come chiefly from India and Canada. The domestic production is largely from North Carolina and New Hampshire.

Molybdenum.—Molybedenum is used as an alloy of steel in the manufacture of high-speed tools, and for automobile parts. It serves many of the same purposes as tungsten and is used abroad more extensively than in this country. The total world output is only a few hundred tons, the United States being the largest producer with about 175 tons of molybdenum in 1917. There are numerous deposits in the western United States whose production could be considerably increased.

Osmium.—Osmium is one of the metals associated with platinum. At the present time it is little used, but may become important as a possible substitute for iridium as an alloy to harden platinum.

Platinum.—The importance of platinum lies in its use as a "contact" material necessary to promote certain chemical reactions in the manufacture of concentrated sulphuric acid and in the production of nitric acid from ammonia. Platinum is used for utensils in chemical laboratories, for contacts in electric apparatus, for jewelry and for dental work. For all these uses 120,000 ounces is normally required. The domestic production will supply only a few thousand ounces, coming from California and Oregon. The import has been obtained largely from Russia with a lesser amount from Colombia. Russia is now a very uncertain source and Colombia, while increasing, cannot meet the deficiency.

Potash.—Before the war we imported over a million tons per year of potash salts from Germany. Over 50 per cent of this material was used for fertilizer and the remainder was used for various chemicals concerned with the production of explosives, soaps, matches, glass, dyes and tanning. The import has, of course, been entirely cut off, except a small amount from India, and the domestic production in 1917 was only about 12 per cent of normal requirements. A large part of this production has come from old lake deposits in California and Nebraska, and as a by-product of recovery from cement plants. A great many new processes are being developed for the recovery of potash from alunite, feldspar, marl, and various organic waste materials such as molasses, wood ashes, and wool scourings.

Pyrite.—Pyrite is a mineral containing iron and sulphur. It is used chiefly in the manufacture of sulphuric acid. The pyrite when roasted produces a sulphur gas which by various chemical processes finally is manufactured into acid. In 1917 about a million and a half tons of pyrite were available for consumption, one-half of which came from Spain and the remainder from the United States and Canada. A decline in Spanish import has been replaced by an increased domestic production, an increased import from Canada, and a partial substitution of sulphur. The principal States producing pyrite are Virginia, California, and New York. New deposits of great promise are being developed in Georgia, Alabama, Missouri, and several other eastern states. A large amount of this material could be secured as a by-product from coal mines in the Middle West.

Sulphur.—Sulphur has several very important uses, particularly for the manufacture of sulphuric acid for munitions and fertilizers, in the production of wood-pulp, as a spray for fruit trees, vulcanizing rubber, and for many other essential chemical purposes. Sulphur has furnished material for an enormous expansion in the production of sulphuric acid for munitions. Formerly almost no sulphur was used for this purpose. The United States is at the present time the largest producer of sulphur in the world. The normal production before the war was about 300,000 long tons which has since increased several fold. A small import has come from Japan. The domestic production is principally from Louisiana and Texas.

Tin.—Tin is essential in the composition of bronze and for tin plate used in the manufacture of food containers and many utensils. There is practically no production of tin in the United States, although a very small amount comes from Alaska. The United States is importing about 70,000 short tons of tin per year, chiefly from the Straits settlements and Bolivia. An increased amount of tin ore is being imported from Bolivia for smelting in the United States. In addition to the supply of new tin a considerable quantity of this metal is recovered from scrap.

Tungsten.—Tungsten is one of the most important alloys for high-speed tool steel, and it is estimated that 99 per cent is so used. Tools made from tungsten steel retain their cutting edge much longer and hold their temper at greater heats and therefore permit much more rapid and continuous operation. Small quantities of tungsten are used in electric light filaments and in electric contacts. The supply of 60 per cent concentrates is between 8,000 and 9,000 tons, about half of which is imported and the other half produced in the United States. The larger part of the import comes from South America. The domestic production is chiefly from California and Colorado. Smaller amounts comes from other western states.

Uranium and Vanadium.—Vanadium is an important alloy used in tool steels and in cast steel where special toughness is desired as in locomotive frames and parts of automobiles. The total amount of vanadium used in the United States is only a few thousand tons, largely imported from Peru. The United States has a considerable production from Colorado and Utah. If necessary much more could be produced from other western states.

Uranium has possibilities for use in tool

steel, but thus far it has been little used. The United States has very large deposits in Colorado and Utah.

The opinion of the Committee on Mineral Imports and Exports with regard to the bill are set forth in the following:

The War Minerals Committee were among the first to perceive the necessity of some control of the production, importation, and distribution of ores and minerals in the United States during the war, and urged this matter upon the attention of the Government for a long time without commensurate result. Finding that the existing government machinery was not adequate to afford executive control of these matters, the Committee came to the conclusion that the war administration of ores and minerals and metals would be the best solution, this administration following the lines of the Food and the Fuel Administrations. Accordingly, they drafted a Bill, following the lines of the Food Administration, and giving the President full executive control of the production and distribution of ores, it being the assumption that this control would be delegated to a Metals Administrator. When the mining public was sounded as to their attitude on the question of a Metals Administrator, it was found that the industry was very much opposed, and this feeling was accentuated by popular criticism of the Fuel Administration which arose at about this time. It was pointed out that this Bill would put under the control of the Metals Administrator the gold, silver, copper, lead, zinc, iron, and other industries, which were getting along very well as they were, and that legislation in regard to them could do very little good, and might do a vast amount of harm if the Mineral Administrator or Dictator should not be an absolutely ideal selection. For this reason the mining committees, both in the Senate and the House, advised that they did not consider it advisable to introduce the Bill.

The matter, therefore, remained in abeyance until the Shipping Board took action to secure ships for military purposes by restricting imports of commodities, and for this purpose our Committee on Mineral Imports and Exports was organized in such a way as to represent the Shipping Board, the War Trade Board, and the War Industries Board. The members of the Committee are impressed with the idea that as the import of these essential commodities, such as manganese, chromite, and graphite, is restricted, immediate steps must be taken by the Government for stimulating and increasing domestic production, otherwise there would be a gap created which could not be filled, with consequent confusion in vital industries like the steel industry, which are absolutely necessary for carrying on the war, and a consequent failure of the shipping program, as put into effect by the recommendations of our Committee. We therefore strongly favor and do now most emphatically recognize the necessity of a strong Government cooperation for the purpose of stimulating the domestic production of those ores ,of which we are threatened with a shortage, mainly on account of artificially limited importations from overseas.

This contingency led the War Minerals Committee to the plan of reviving the question of a Mineral Administrator, who, however, should only have under his charge those ores and minerals of which we were thus threatened with a domestic shortage, and in accordance therewith the present Bill was drafted.

We may first reiterate that we were at first very much concerned over the fact that there appeared to be no government organization equipped and ready to take up the work of watching over and stimulating domestic production to take the place of our cuts in imports, which have been decided upon with the understanding that the increase of domestic production which appears feasible shall be brought about by Government assistance. It was evident that our Committee, primarily organized as a Committee of the Shipping Board, could not accept responsibility for any other field than that necessitated by the Shipping program, but it was equally clear that our actions must be accompanied by immediate complementary activities covering domestic production and distribution. The matter was solved by the War Industries Board agreeing to accept the responsibility for these domestic protecting measures. Final recommendations for restriction of imports, as they are now formulated, carry with them the approval of the War Industries Board, and are put into effect through the War Trade Board, which will issue licenses for import and export accordingly. These recommendations usually briefly outline the remedial domestic measures to be taken, but these suggestions are merely suggestive and gratuitous, and it is understood that this remains in the hands of the War Industries Board. This was a very satisfactory arrangement for us, since the shipping program was imperative and ships had to be taken at once for military purposes, with or without careful investigations, and therefore the Shipping program could not wait for further legislation. The function of our Committee was to see that this commandeering of ships was accomplished as equitably and with the least disturbance of vital interests as possible.

At the present moment, therefore, we are in a position to speak *ex parte* in the matter, as the program is already largely arranged for, and the work and responsibility distributed among existing and actually functioning government bodies.

Our first thought is that, in the interests of efficiency, an existing organization might do the work required, to obviate the loss of time which would be necessary to the building of a new organization, after the initial delay of proper discussion and legislative action. It is believed that the framers of the Bill in question also have this idea in mind and might subscribe to this, and insofar their present

plan will differ from the original plan, which probably contemplated, a new administration. If so, the question resolves itself into strengthening the hands and enlarging the powers and resources of one of two existing Government bodies, the War Industries Board, or the Department of the Interior, with its United States Geological Survey and its Bureau of Mines. Should the Bill pass, the matter is left in the hands of the President as to whom he will delegate the authority conveyed to him, and he will use his own judgment in this; but if precedent in other decisions shall be followed, it is probable that he will not delegate his special war functions to the ordinary peace time Government organizations, and this will indicate the War Industries Board as the probable body which will be strengthened in order to carry out the work indicated more promptly and efficiently. Nevertheless the resources and powers of this Board are not sufficient. In any case a considerable extension and reorganization will be necessary for satisfactory operation of the functions contemplated in the Bill under consideration, and close cooperation with the Bureau of Mines, the U. S. Geological Survey, and other governmental agencies.

As regards the scope of the Bill, the copy forwarded by you under date of February 22nd, covers "practically all ores and minerals except aluminum, gold, silver, steel and iron, copper, lead, zinc, coal and petroleum." Specifically it includes "all ores, minerals, intermediate metallurgical products, metals, alloys, and chemical compounds of antimony, arsenic, bismuth, bromine, chromium, corundum, emery, graphite, iridium, magnesite, mangenese, mercury, mica, molybdenum, osmium, platinum, potash, pyrites, sulphur, tin, tungsten, uranium, vanadium and of other rare or unusual elements the supply of which may, in the judgment of the President, be inadequate for war and industrial needs." In the Bill as printed by the Committee of the House of Representatives, and dated March, 1918, however, the list of minerals is further limited as follows: "Antimony, arsenic, chromium, graphite, magnesite, maganese, mercury, molybdenum, platinum, pyrite, tungsten, tin and sulphur alloys and chemicals derived from them."

Our comment on this list is that it is entirely inadequate and that any Mineral Administrator appointed over these commodities and not over equally essential commodities, would not at all remedy the existing necessity. The Bill is intended, as stated in its text, to provide for "encouraging the production, conserving the supply, and controlling the distribution of those ores, metals and minerals which have formerly been largely imported or of which there is or may be an inadequate supply." In other words, it covers particularly those mineral commodities the importation of which has been or will be restricted by our Committee. Now these commodities include part of the above list, but also include clay, asphalt, bauxite, salt, gypsum, mica, asbestos, chalk, Fuller's earth, grinding pebbles and other mineral commodities which constitute scarcely less an important problem, from the standpoint of tonnage involved or of relation to essential industries, than the list given, and it is quite positive that the same government assistance must be given to the domestic stimulation and protection of these commodities as to those listed in the Bill. Furthermore, there are the minerals of maximum importance, such as iron and copper, which are imported to a considerable degree ,and although it may be inadvisable to put a Metals Administrator over them, it is equally necessary for these to be directed, distributed and protected, as in the case of the other commodities, and for the same reasons.

Our first comment, therefore, is that instead of the limited list of mineral commodities mentioned in the bill, any further control and organization by the Government should embody the possibility of including all the mineral commodities.

The next question is the amount of control which exists and the further functions which it is necessary for the Government to create and grant. The essential features of the bill are that the proposed further powers consist in punishing hoarding or combinations to restrict production, or exact excessive prices; that the manufacture, storage, mining, or distribution of any necesssaries may be licensed in order to put them fully under control; that necessaries may be commandeered and purchased; that contracts for purchase by the Government may be entered into and commodities so purchased may be sold; that the Government may take over and operate any undeveloped or idle mineral land, deposit or deposits, mine, smelter or plant, to be restored to the owner at a subsequent time; that control be given of the market prices of necessaries, including the right to investigate private business accounts; that prices may be fixed by the Government, and producers guaranteed fixed prices for not more than two years; and that special import duties may be levied in order to protect these producers. Finally, the sum of $1,000,000 is appropriated for the period ending June 30, 1919, for the carrying out of this proposed administration, and the sum of $50,000,000 is appropriated as a fund for carrying out the provisions of the bill.

It will be seen that the required authority for regulating domestic production is quite fully covered in this bill, and in the hands of the ideal executor it will doubtless work out most satisfactorily. As there is always some question, however, as to the ideal personality, until this shall have been proved, the question arises whether it is not possible to increase existing authority and functions, up to the requisite limit, without going the entire length of the program. Apparently some closer study should be made of existing government functions to see whether some of these powers thus to be given to a new official do not

already exist, scattered through different branches of the Government, and could not be exerted if it were manifestly advisable. The purchasing departments of the War and Navy, and the purchasing organization of the War Industries Board, apparently have it within their power, if they are so advised that it is essential, to contract at a fixed price for a government purchase of commodities over as long a period as will be desired. Purchases of platinum have already been made by the Government, and it would seem perfectly feasible, for example, for the Government to contract for a certain amount of chromite covering a period of two years. Through its close contact with the industries the War Industries Board could, perhaps, arrange for even larger financial operations by arranging with the different industries to immediately purchase commodities which the Government is contracting for at a fixed price. Financial assistance in opening up and operating mines is apparently contemplated in the proposed bill for a war finance corporation, which is being pushed by Secretary McAdoo and which apparently has a good chance of going into effect soon. In short, it is a question as to whether the existing functions of the Government working in harmony cannot accomplish most of the objects aimed at in the bill. The Shipping Board, the War Trade Board, the Food Administration, and the Fuel Administration, all have the powers which they can use to assist the organization directing the metal industry, and they will doubtless heartily cooperate to relieve any necessity. We repeat that a careful summary should be made of these existing government functions, and, it appears to us, that if there is any other necessary function which the organization controlling the encouragement of war metals should have, it should be arranged for at once.

We desire to point out, however, that all these functions enumerated in the bill would not, of themselves, furnish anything like a satisfactory solution to our problem of stimulating domestic production. We, of the Committee on Mineral Imports and Exports, by reason of our intensive study of different commodities and numerous representative trade conferences, which we have conducted in cooperation with the War Industries Board, know that the main problems to be met and overcome are those of labor and railroad transportation, and not those mentioned in the bill. These problems can only be solved by the method above indicated, namely, by cooperating with the Department of Labor and the Railroad Administration.

In short, it appears absolutely necessary to us that this problem of encouraging and assuming the responsibility for domestic production of necessary ores and minerals, should be delegated to one government organization, preferably one already existing, and presumably the War Industries Board; that this organization should complete its preparations and its system in order to carry out the responsibilities involved, and should take upon itself the responsibility of securing the cooperation and assistance of the other departments of the government, and the advantage of their peculiar powers as well as their information; that if it appears, upon test, that any essential powers or functions are lacking, these should be secured as expeditiously as possible, but no unnecessary or arbitrary powers should be given without a careful survey and investigation; and that finally the range of mineral commodities involved should cover the whole field, metallic and nonmetallic.

Some of the points brought out by J. F. Callbreath, Secretary of the American Mining Congress, are as follows:

I do not speak for the American Mining Congress because I do not feel authorized to speak for all its members. I will present only my own personal opinions and some letters which have been received from members which I believe will be helpful in the consideration of this subject.

I have been classed as an opponent of this legislation by some of those who are especially interested in it. I want to state that I am not an opponent of the purposes which are sought to be served by this bill.

Never in the history of this country has our form of government been under more severe trial than it is at this time. That a government, republican in form, shall be able, in times of great stress like the present, to exercise autocratic power so that it may carry out its purposes as a unit, to change from a democracy to an autocracy, puts a severe strain on our government. It would be farthest from me to oppose any plan which would give to our national government the power to coordinate every possible force in the carrying out of its great purposes.

The purpose of this legislation as I understand it is to secure a supply of maganese, pyrites chrome and other rare minerals of which there is a shortage and of which we have been obtaining our supply in foreign countries. Primarily, it is to release the shipping now engaged in the importation of these minerals so that these ships may be utilized in carrying soldiers and necessary food, equipment and supplies to the other side for our men and for our allies.

The only question is my mind is whether it is necessary to create another new organization in order to accomplish this purpose. If we are to create or give additional power for the purpose of stimulating the production of these minerals we should not authorize the creation of a new agency to serve a single purpose but rather keep in the same channel of development which has been pursued because I believe that agency will give the best results. I refer particularly to the Interior Department.

With you, I believe in casting all other things aside to meet the present emergency, but if in meeting that emergency we can also provide for the future, that we should follow

that line. There is but one thing that stimulates production in a business way and that is price. We must provide a profit for the man who goes into a new enterprise made necessary by the disturbance of the business machinery of the world. The men who put up plants under present conditions, when the cost is twice as much as in ordinary times, must be permitted to amortize that increased cost during the time when the high price is available. They must be permitted also to charge back the regular depreciation of that plant. If a plant is to cost $200,000 today which three years from now could be constructed for $100,000, then that man must be permitted to amortize $100,000 of this increased cost plus the ordinary depreciation of his plant during those three years.

I believe that a simple agency authorized to contract for the production of this ore for sufficient time to permit this amortization will accomplish the purpose which you have in mind. I fear that the creation of a new agency outside of the Interior Department, which directs the work which is now being carried on by the Geological Survey and the Bureau of Mines, would interfere with these already created agencies in such a way as to hamper their future usefulness.

Mr. Hamlin. Do you have any reason to think that the President would not administer the law through the Interior Department?

Mr. Callbreath. The Interior Department has been charged with the responsibility of general supervision of the coal industry of the country. The Secretary of the Interior did undertake to meet the coal situation but the responsibility was immediately shifted and we have had a coal famine which all of those gentlemen who thought out the situation predicted before it happened. The Fuel Administration was appointed to insure a supply of coal for a country which has the facility for producing 50 per cent more coal than it can possibly consume. Interference with the price, the only incentive which ever in the history of the world has brought up production, created a coal famine which has cost this country millions of dollars, caused suffering and want, and interferred more in our struggle and effort to prepare to meet the enemy upon the fields of France than any one thing which has occurred.

This statement is made in reply to the suggestion that this new mineral control would naturally be placed in the Department of the Interior where I feel it should be placed. That would have been the natural place for a coal administration to go. The Secretary of the Interior in conjunction with one of the most capable coal men in the United States forced a maximum price which would have allowed all of the coal mines of the country to operate. A $2 price was urged by people who thought they knew more about coal than Mr. Peabody and Mr. Lane. The $2 price would permit two-thirds of the mines of the country to operate at a profit; the other one-third could not operate profitably at that price and the result was a coal shortage. It was argued that because coal had been sold for an average of $1.11 per ton for five years prior, that $2 per ton was an enormous price and that the men who asked more than $2 per ton were profiteering. The effect, as we now know, was that many mines at the increased cost of production could not operate at that price. If the $5 price had been allowed to remain and if the men who understand the coal industry had been allowed to control, I do not believe there would have been any substantial coal shortage and there certainly would have been no coal famine. I mention this because I believe it is important that this bill shall use agencies which understand the business.

I would favor such price as would cover the amortization of the difference between the present and future costs of construction, the ordinary depreciation on the plant and give a fair profit. If a minimum price were to be fixed, I should fix it high enough to permit the operation of the most expensively operated mine and if too large profit were made by the cheaper operations I would reach out through the Excess Profits Tax Law and take back the excess profit.

The Chairman. You think it is a good thing for the government to buy at a big price and then take it back through the Excess Profits Tax?

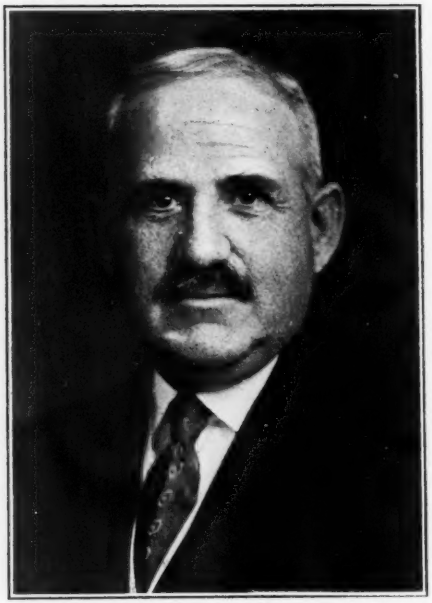
Mr. Callbreath. I think it is a good thing to get the result. I think it was Mr. Farrell who stated before the Committee on Raw Materials of the War Trade Board that $500 manganese which you have will make much better steel than $100 manganese which you have not. We need the ships which are supplying ore to the steel industry and we must pay whatever price is necessary to get the manganese in order to withdraw these ships and still keep the steel industry in operation. To simply fix a minimum price and give no guarantee that that price will remain is absolutely without avail.

The Chairman. How long do you think the contract price ought to remain?

Mr. Callbreath. Long enough to guarantee a reasonable profit on the investment. If too much money is made take it back under the Excess Profits Tax Law. I would give the Government power to make contracts for the production of this ore, with additional power by a tariff on foreign importations to protect its interests in case it has money invested in the War Industries Board could, perhaps

The good of the people at home also requires that you frame legislation which will be effective after the war is over. We are fighting in this war for one blessing to be added to all the other blessings which we enjoy. What will democracy in the world be worth to a starving people? What is liberty of the seas to a man who is lacking the essentials of life? We should create machinery that will provide all of these other necessities and thus enable us to fight the better, the stronger and the harder for the one luxury of liberty for which we are now fighting.

BONNER IS PUTTING THINGS OVER FOR STEEL INDUSTRY



Harris & Ewing

J. B. BONNER

The history of the present war will not be written accurately unless the part James B. Bonner is playing in it has been duly recorded. That, briefly, sums up official Washington's view of the man in whom the iron and steel industry today has its closest contact with the government's war machine And the officials in Washington who express this view, naval and army officers alike, mean to see that Mr. Bonner's services are recognized as soon as the war is over.

Mr. Bonner is vice chairman of the American Iron and Steel Institute's subcommittee on steel distribution, with headquarters in Washington. In private life he is the Philadelphia district sales manager of the United States Steel Corporation. Since he has taken up this part of the Institute's work, steel men have come in contact with him as they never had before. And almost every one of them has praise for Mr. Bonner, whose staff in Washington, originally three or four, has been expanded to meet the war requirements and now numbers more than two dozen.

"Ask Bonner."

This phrase, used in connection with steel matters, is more universally employed in the national capital than any other. If the navy department wants to know when to look for deliveries on boiler tubes, they ask Bonner. If the army wants to know where to get projectile steel, they ask Bonner. If the shipping board is hunting for ship plates, they ask Bonner So it is all along the line.

Everywhere in Washington it is a known fact that Mr. Bonner has done more for the government than any other steel man. This continual reference to him, even with the government's own steel division at their beck and call, is not confined to junior army and navy officers. Rear admirals, interested in the naval program, ask his advice. Major generals, deeply concerned in rushing steel "over there," seek him out. Even Secretary Daniels himself is known to have contributed to the praise of Mr. Bonner's work. Many have expressed their opinions privately and are only waiting opportunity to do so publicly. A look at the pictures on the wall in Mr. Bonner's private office gives some idea of the men who hold him in high esteem. Among them are Admiral Benson, General Goethals, Admiral Taylor Secretary Daniels.

Mr. Bonner's standing with these men has not grown up with the war. His intimate knowledge of government requirements has come through at least fifteen years of close contact with various government officers and the army and navy specifications, their regulations and the laws affecting government purchases.

More Assistants Appointed

Appointment of three assistant district representatives whose official duties will include work in Maryland, West Virginia, and Pennsylvania, has been announced. The appointments are: J. Howard Magee, Cumberland, Md., who will act as assistant district representative of the Fuel Administration in the coal fields of Maryland; D. M. Carl, Cumberland, assistant district representative for operations in Maryland, and in Mineral, Grant, and Tucker counties, W. Va.; and J. M. Cover, Cumberland, for operations in Somerset county, Pa., on or tributary to the Baltimore & Ohio and Western Maryland railroads, and in the Indian Valley districts in Fayette and Westmoreland counties, Pennsylvania.

Requests for coal from state administrators and requests and orders from the United States Fuel Administration in Washington are to be sent as usual to District Representative John C. Brydon, and not directly to the assistant district representatives.

Michigan Representative Named

Arthur Fancher has been appointed District Representative of the United States Fuel Administration, and has been assigned to duties in the coal fields of Michigan. He is a resident of Bay City, Mich., and has been closely identified with the fuel situation in that state.

Mr. Fancher will cooperate with the operators, the railroads, and the public as the direct representative of the Fuel Administration.

SENATOR JONES DEFENDS THE FUEL ADMINISTRATION

Takes Exception to Many of the Statements Made and Conclusions Reached by Senator Lodge

A defense of the Fuel Administration was made on the floor of the Senate March 22 by Senator Jones of New Mexico.

After reviewing the coal situation which existed when H. A. Garfield was appointed by the President to the position of Fuel Administrator, Mr. Jones said:

"It was evident that many problems existed and that to solve them it would be necessary to bring into an organization men of experience, men from different branches of business activities and also those who were familiar with the economics of the trade and of distribution. The Senator from Massachusetts, Mr. Lodge, would have us believe that this was not done, and in expressing himself uses some very strong language. In one connection the Fuel Administration is referred to as a 'bureau' largely composed of amateurs.' In another place the Senator says: 'Upon this conflicting and difficult situation the untried man known as the Fuel Administration was suddenly imposed.' In another connection he uses the phrase 'ill-considered and violent action of the Fuel Administration.'

"That these characterizations are unjustified will become apparent by reference to the personnel of the Fuel Administration. Owing to the fact that these attacks upon the Fuel Administration, and especially of the director, have a most deleterious tendency, I think it wise for us to have some rather extended information regarding this chief of a most important activity of our country in these perilous times. Our patriotic citizens are not willing to put responsible trust in irresponsible hands."

Senator Jones caused to be read into the record a brief summary of the business and professional experiences of Fuel Administrator Garfield, in part as follows:

"Mr. Garfield was admitted to the bar and began the practice of law in the city of Cleveland in June, 1888. His extensive business acquaintance brought him a large business practice in which he was associated with the most experienced and successful business men in Cleveland.

"His intimate knowledge of the coal business, through personal experience with that business, was acquired, as manager, with Calvary Morris, a successful and extensive coal operator, of who doubtless you have often heard as manager of the syndicate of Cleveland business men which undertook and carried to a successful conclusion the developent of large coal mines in the Piney Fork district of Ohio and connection of those operations by a railroad with a Lake Erie port. This syndicate was organized about February, 1901, and the development of its mining properties and of the railroad occupied Mr. Garfield's time and attention almost exclusively for nearly two years until a control of the completely developed properties was disposed of to the Lake Shore & Michigan Southern Railway. For some years thereafter Mr. Garfield remained, at the request of the purchaser, a director and vice-president of the mining company.

"Very shortly after the beginning of practice in Cleveland, Mr. Garfield undertook and carried to a successful consummation the construction of the Garfield Building at that time the largest and even today one of the largest office buildings in Cleveland. This building was constructed and owned by a corporation, among whose stockholders are some of the most successful business men of that city. Mr. Garfield had entire charge of the building contracts, the financing of the cost of the business, and the negotiations with tenants. From its completion to the present time the building has been a great success and Mr. Garfield is still one of the directors of the owning company. The building was constructed under a long-term ground-rent lease of land owned by John D. Rockfeller, with whom Mr. Garfield personally conducted all negotiations leading to the execution of the lease.

"Contemporaneously with the construction of the Garfield Building Mr. Garfield was actively interested in the organization of the Cleveland Trust Co. This trust company has been signally successful as one of the strongest and most ably managed financial institutions of Cleveland, and Mr. Garfield was one of its directors, its vice-president and counsel, as well as a member of its executive committee from the date of its organization until 1904, when he retired from practice.

"Mr. Garfield, in connection with some other Cleveland gentlemen, undertook the organization of the Conneaut Water Co., which at that time, was financially embarrassed, reorganized and refinanced it and developed it into a very successful company, which today and now for many years has furnished the city of Conneaut, Ohio, with an adequate and satisfactory water supply.

"From the time he began practice, Mr. Garfield had entire charge of a large estate. This estate included improved and unimproved real estate in the city of Cleveland, interests in various Lake Michigan iron mines, in a well-known Cleveland shipbuilding company, and other business activities.

"For several years Mr. Garfield was a member of the executive committee of the Cleveland Chamber of Commerce, was president of the chamber in 1898, and as chairman of its building committee conducted the construction of its present building.

"From 1897 to 1908 Mr. Garfield was chairman of the national committee on the reorganization of the Consular Service of the United States. This committee, as you doubtless know from your interest in business, was made up from representatives of the chambers of commerce and boards of trade of the twelve largest American cities, and conducted a various active campaign in efforts to improve our Consular Service and place it upon a basis where it could be more useful and helpful to American business interests. To this work Mr. Garfield devoted much time and attention, including frequent visits to Washington, until the successful accomplishment of its object in 1906.

"It would be difficult to suggest better qualifications for a Fuel Administrator than those possessed by Mr. Garfield. Here is a man of large general business experience and special experience in the coal industry, a splendid organizer, and no direct interest, in a large way, either as a producer or consumer.

"The Senator from Massachusetts reviews the coal situation as he sees it and says:

" 'The Fuel Administration entered and proceeded to fix a price which made it impossible to work many mines.'

"The Senator also refers to this as 'reckless price fixing,' and as an undertaking to 'fix an abnormally low price for coal,' again he says:

" 'Even if we admit that they kept prices down, which is purely guesswork, they brought a coal famine with its nominal fixed price.'

"These characterizations may be classed as 'important, if true.'

"Under the prices fixed by the President, as readjusted by the Fuel Administration, there was a steady increase in production each month over the corresponding month of the previous year until December, with its unprecedented weather conditions, was reached. But there was an arbitrary limit on the output of bituminous coal over which the Fuel Administration had no control, and which up to January of this year was not under the direct control of the Government. This limit was established by transportation conditions. Senator Lodge says that 'the mines could not work to capacity because they could not get cars.' The Fuel Administration was absolutely without authority over the railroads. All of its efforts to increase production were dependent upon the ability of the mines of the country to secure an adequate and continued supply of cars. So far as bituminous coal is concerned, that car supply has not been available at any time since the Fuel Administration was organized. The factors of labor supply and price inducement were comparatively negligible in controlling the output of bituminous coal, because at no time has either of these factors been allowed to operate without the limitation imposed by a shortage of cars.

"The economic pressure that might have been brought to bear by an industry driven to extremes under the pressure of an enormous demand, a short supply, and soaring prices, to secure transportation service that would have allowed an increase in the output, could have been no stronger than the economic pressure brought to bear by the unprecedented demand for coal at the price fixed by the Government and the willingness of the operators to furnish it. No matter how high the price might have gone through the unrestricted law of supply and demand, the limit on the output of bituminous coal must still have been reached when the limit of transportation service was reached. It is futile to speculate as to what steps might have been taken by the railroads to meet the demand, provided coal prices had been allowed to soar to $10, $20, or $30 per ton at the mouth of the mine. No amount of competitive economic pressure could have overcome the hard physical fact confronting the railroads of the country that their facilities were not adequate to care for the enormous increase in war traffic which was suddenly thrust upon them.

"The activities of the Fuel Administration from the very beginning have been directed toward supplying the extraordinary war demand for coal on the part of the Government itself and those branches of industry which the Government has called into war service. With the entire coal output inadequate to supply the demands of the country, it has been necessary, of course, to make readjustments to supply the war demand. Upward of 10,000,000 tons of coal probably have been furnished to the army, navy, and other government departments. Other millions of tons were essential to supply the increased and new demands of industries directly engaged in production for war purposes. In large measure these requirements have been met. Had these industries been left to the tender mercies of the relentless law of supply and demand and the usual avenues for distribution there would have indeed been chaos and confusion. The coal would have gone to the highest bidder, without any consideration of the necessities of the war. Any industry willing to pay the price would have obtained coal, regardless of the uses to which it might be put. The limited supply of coal for domestic consumption would have warmed the rich and left the poor to suffer and freeze.

"Let us consider briefly the order issued by the Fuel Administration on January 17. This is referred to by the Senator from Massachusetts as the 'reckless order closing down factories and industries of all sorts for five days.' To the mind of the Senator there was no excuse or reason for the issu-

ance of this order, and it is simply characterized by the word 'reckless.'

"The Senator from Massachusetts refers to this action of the Fuel Administration as 'ill-considered and violent.' He presents reports from two industries showing the value of fuel saved in tons and the value in dollars of the loss of wages, loss of production, and the loss to stockholders, and says that these two examples represent thousands of other industries throughout the country.

"What was it worth to bring to full capacity the manufacture of steel plates, projectile steel, and war munitions? What was it worth to bring to the shipyards ample supplies for the building of ships? What was it worth to increase the output of clothing for the armies in France and the armies assembled in the cantonments? What was it worth to say to the soldiers in France the first consideration at home is their welfare and their support? What was it worth to the mothers of our country to say to them that their boys, who are making the supreme sacrifice, shall be sustained? What was it worth to bring to the business interests of this country a keen realization of the actualities of war? What was it worth to say to France, Italy, Serbia, Belgium, and England that their sacrifices for the preservation of world civilization shall not be in vain? What was it worth to say to them that when we pledged the whole of our resources to the conduct of the war that we meant what we said? What was it worth to say to Imperial Germany that the whole of America is willing to stand at attention, cease ordinary industry, and in patriotic fervor watch the increasing glow of furnaces, listen to the ceaseless movement of trains, watch the departure of ships, all for the purpose of sustaining this war and convincing the imperialistic autocracy that civilization shall not be crushed and that democracy shall endure? A balance sheet showing only debits and credits in dollars is incomplete. There are some things which cannot be valued in dollars.

"After the effects of the order's operation in this country were known, a similar order was issued and made effective in Canada.

"The Directors of the Food and Fuel Administrations are men splendidly equipped, having both natural and acquired executive ability as administrators of high order, and were well chosen for their respective positions. The organizations have brought together a large number of expert business men who, through toil and study, have reached eminent positions in the respective lines of industry with which they are to deal. All are serving the country solely for patriotic reasons. There is no inducement of a pecuniary nature. The great majority receive no salaries and pay their living expenses. They are devoting their whole time to this service. They are even endangering their health. The problems confronting them are recognized as important and perplexing. Day after day, night after night, the combined wisdom and skill of these organizations is devoted to the solution of these problems, to meeting changed conditions, and if these problems can be dealt with so as to overcome the myriad difficulties presented and interfere with business as little as possible, these organizations will do it.

'The remedy therefore is, let these organizations alone. If they need more power, give it. Do not badger and heckle them. On the other hand, help and encourage them. Let us not say to the world that the affairs of our government at this time are in incompetent hands. To the contrary, let us tell the truth and say to the world that the resources of this country are being successfully mobilized for the purposes of the war. Let us encourage the toilers in the mines and fields and those engaged in the essential service of transportation. Let us encourage the women in the land who are striving and on whom we must depend to conserve food for ourselves and our allies. Let us assure business in general that we have not entered upon an era of willful destruction. Let us not say to the taxpayers that their contributions are supporting inefficiency. Let us say to all those who are making sacrifices in this emergency that their efforts are not in vain."

Prosecutions Begin

There have been 424 complaints received of violations of the orders promulgated by the Fuel Administration since its organization. This number does not include violations of order of January 17, 1918.

Criminal prosecutions were instituted in eighty-three cases. Two hundred and eighty-one violations are under investigation and pending; and eighteen have been dropped because investigation disclosed no violation.

In forty-two instances persons engaged in various branches of the coal trade were compelled by the Fuel Administration to refund sums aggregating $34,000 which had been improperly collected by them in the conduct of their business.

A systematic examination is being made by the legal department of all sales reports being filed with the Federal Trade Commission. Agents of the Department of Justice and of the Federal Trade Commission are supplementing this examination by investigations in the field.

Officials of the Fuel Administration believe that by these methods it will be able to obtain evidence of sales in excess of the government prices, and of violations of the regulations of the Fuel Administration. This evidence will be made the basis for prosecutions under the Lever Act in all cases in which such action is deemed advisable.

PLATINUM COMMANDEERED BY THE GOVERNMENT

Chemical Division of War Industries Board to Exercise Control over Much Needed Metal

The Government on March 1, took over control of the production, refining, distribution and use of crude and refined platinum for the period of the war. The control will be exercised through the Chemical Division of the War Industries Board. The Chemical Division sent out to the industry requests for inventories of the existing stock of crude and refined platinum, and platinum iridium alloys as of March 1.

The letter stated that it was not the intention of the Government to take over and handle directly the present stock of platinum, but to permit its shipment by the producers or dealers subject to certain conditions. Upon the fixing, by the Secretary of War, of a reasonable price for crude, refined, and alloyed platinum, notice will be given and blanks issued governing delivery and distribution.

The letter sent out by the Chemical Division includes the following directions to producers:

"1. That producers, refiners and dealers in platinum continue to dispose of their product for government purposes, and for that only as directed by the Chemical Division.

"2. That producers, refiners and dealers in platinum who are also consumers, use platinum for government purposes and for that only, as directed by the Chemical Division.

"3. That all obligations arising out of transactions in the production or delivery of crude, alloyed or refined platinum released as above, including all claims for shortage, poor quality, damage or loss in transit be borne by the producer or seller, as the case may be, in accordance with existing trade practices.

"Distribution may be made by consent of this board through agencies under existing arrangements, provided that there results no increase over the existing price to the user.

"The undersigned, on separate application in each case, will consider permitting the delivery of a limited amount of platinum for essential commercial purposes not for government account.

"Proper blanks upon which application for release of shipment should be made will be furnished on application.

"The following list indicates, in general, the order of preference which will be followed in releasing platinum for shipment:

"First, military needs of the United States Government.

"Second, military needs of Allied Governments.

"Third, essential commercial purposes."

The commandeering order does not apply to or interfere with the purchase by the consumer of any manufactured articles containing platinum.

New Mexico Prices

Classifications and prices at which coal may be sold at the mines in New Mexico have been announced by the United States Fuel Administration.

The order fixing the new scale is made effective as of April 1 and provides for summer reductions in the price of prepared sizes.

Coal mined in New Mexico may be sold at the mines at prices to not exceed the following:

Raton district—Run of mine, $2.35; prepared sizes, $3.25; slack or screenings, $1.65. (The former prices for this district were $2.75, $3.25 and $2.00 respectively.)

Gallup field—Run of mine, $3.05; prepared sizes, $4.05; slack or screenings, $2.00. (Former prices, $3.05, $4.50 and $2.00 respectively.)

Carthage field—Run of mine, $4.25; prepared sizes, $5.05; slack or screenings, $3.55. (Former prices, $4.05, $5.05 and $3.55 respectively.)

Cerillos field—Run of mine, $4.05; prepared sizes, $4.55; slack or screenings, $3.55. (Former prices for this field were same as those for the Carthage field.)

Sugarite and Monero fields—Rune of mine, $3.00; prepared sizes, $4.00; screenings, $2.00. (Former prices for these two fields were $3.00, $4.00 and $2.00 respectively.)

Summer reductions in price of prepared sizes are provided for as follows: April 1, fifty cent; May 1, forty cents; June 1, thirty cents; July 1, twenty cents, and August 1, ten cents.

Operators who have complied with the wage advance agreement may add forty-five cents per ton to the prices named in the order.

Not a Natural Gas Expert

The editor of the MINING CONGRESS JOURNAL has the following letter from Warren S. Blauvelt, who is in charge of coke matters for the Fuel Administration:

"I note in your March issue the statement crediting me with knowledge and experience in the natural gas field, which is entirely erroneous. I regret that such statement was made, and would be pleased to have you at least notify the people who made such a statement that the information is incorrect. Whether or not the matter is of enough importance or interest to require correction in your columns, is for you to determine."

THE
MINING CONGRESS
JOURNAL

PUBLISHED EACH MONTH BY
THE AMERICAN MINING CONGRESS,
Munsey Building, Washington, D. C.

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Chicago Office: 908 Rector Building, Tel. Central 8744.

Subscription Rate, per year..... $2.00
Single Copies..... .20

Entered as Second Class Matter January 30, 1915, at the Postoffice at Washington, D. C.

APRIL, 1918

COMMITTEE NAMED TO HANDLE DISTRIBUTION OF ANTHRACITE

The United States Fuel Administration has adopted a plan for the distribution of domestic anthracite coal from the mines to the retail dealers for the coming year. The details of this distribution will be supervised by J. B. Dickson, S. D. Warriner, and W. J. Richards, who have been appointed district representatives in the Pennsylvania anthracite producing fields for the U. S. Fuel Administration under the general direction of J. D. A. Morrow, manager of distribution.

These district representatives, acting as a committee, will confer with the State Fuel Administrators as to the needs of the respective states, and will meet these requirements as fas as possible. The committee will always have at hand data showing the amount of coal that has been furnished to all communities in the past, and this data will be available to the State Fuel Administrators.

Comprehensive figures have been compiled which show the tonnage by sizes sent into the various states during the coal year, April 1, 1916, to April 1, 1917, and during the coal year April 1, 1917, to date. The year 1916-17, the last normal year, will be used as a basis of distribution for the coming year beginning April 1. The tonnage shipped into each state has been subdivided into the amounts shipped into the various communities in each state, and the figures as to all communities will eventually be available. Prior to April 1 this information will be given to the State Fuel Administrators, who will advise various county and city chairmen. From them each dealer may learn the total tonnage than allotted, ample opportunity will be given for necessary adjustment. The figures, as above described, will be of assistance in the broad and equitable distribution of anthracite coal during the coming spring and summer months.

Retail dealers will place their orders in the regular way with the ordinary sources of supply which they patronized in the winter of 1916-17.

Because of the greatly increased needs of the territory adjacent to the Atlantic Seaboard, and the large increase there in population and industrial activity due to the war, and because of the transportation features involved, it may be necessary to reduce somewhat the normal tonnage to the West and Northwest. Except for such changes each operator will distribute his tonnage as during 1916-17. In case there is need of diversion from the normal lines, to meet changed conditions, such as providing for movement during open navigation, or in order that distribution may be more equitable, this will be done. The district representatives named above have the figures as to the tonnage sent into each state and community, and will notify the various State Fuel Administrators.

BREWERS AGREE TO CUT OUTPUT 30 PER CENT

The Fuel Administration recently proposed to the War Service Committee of the United States Brewers' Association, in the interest of promoting the conduct of war industries to the fullest possible extent, that the brewing industry submit to a reduction of the amount of their brewings during the period from April 1, 1918, to June 30, 1918, of 30 per cent of the amount brewed during the corresponding period of 1917, as shown by the monthly Internal Revenue reports.

The War Service Committee of the United States Brewers' Association, in a spirit of cooperation with the United States Fuel Ad-

ministration, accepted this suggestion and decided that directions to carry out the foregoing reduction shall go forward promptly to all engaged in the industry.

ILLINOIS, PENNSYLVANIA AND WEST VIRGINIA PRICES REVISED

Reclassification of prices for the entire State of Illinois and reclassification for some of the largest coal fields in Ohio, Pennsylvania, Virginia and West Virginia, were announced today by the United States Fuel Administration as the reclassification in Illinois covers the whole State, comparison with former prices for any one district is impossible.

Maximum prices in the other States affected in the orders announced today are unchanged from those already in effect and are merely confirmatory of the mine prices in effect last season.

The maximum prices for the various fields are as follows: Ohio and West Virginia, number eight or Pittsburg seam, including Hancock, Brook, Ohio, and Marshall counties, West Virginia and Jefferson, Harrison, Belmont, Carroll and Monroe counties in the State of Ohio, run of mine, $2.00; prepared sizes, $2.25; slack or screenings, $1.75.

Pennsylvania—Pittsburg field including the counties of Washington, Green, Fayette, Westmoreland and Allegheny except (first) that portion of Allegheny County from the lower end of Tarentum Borough north to the county line; (second) the territory in Westmoreland County from a point opposite the lower end of Tarentum Borough north along the Allegheny River to the Kiskiminitas river and along the Kiskiminitas river eastward to the Conemaugh river to the county line of Cambrai county; (third) operations on Indian creek in Westmoreland county; (fourth) operations in the Ohio Pyle district of Fayette county. Run of mine, $2.; prepared sizes, $2.25; slack or screenings, $1.75.

Illinois District Number One.—Including Mercer, Bureau, Kankakee, La Salle, Grundy, Will, Putnam, Marshall, Livingston, Woodford, and McLean counties: Run of mine, $2.65; prepared sizes, $2.90; slack or screenings, $2.40.

District Number Two.—Including Rock Island, Henry, Warren, Knox, Stark, Peoria, Hancock, McDonough, Henderson, Fulton, Tazewell, and Schuyler counties: Run of mine, $2.40; prepared sizes, $2.60; slack or screenings, $2.10.

District Number Three.—Including Menard, Logan, Dewitt, Champaign, Vermillion, Sangamon, Macon, Pratt, Christian, Moultrie, Shelby, Green, Macoupin and Montgomery counties, and Madison county north of the latitude of Alton; also all mines included in other rulings: Run of mine $2.00; prepared sizes, $2.20; slack or screenings, $1.70.

District Number Four.—Including Bond, St. Clair, Monro, and Randolph counties, and Madison county south of the latitude of Alton and Clinton, Washington and Perry counties, not including mines along the line of the Illinois Central railroad between Vandalia and Carbondale: Run of mine, $2; prepared sizes, $2.20; slack or screenings, $1.70.

District Number Five—Including Jackson county, not including mines on the line of the Illinois Central railroad between Carbondale and Duquoin: Run of mine, $2.40; prepared sizes, $2.60; slack or screenings, $2.10.

Illinois, District Number Six.—Including Marion, Jefferson, Franklin, Williamson, Johnson, Hamilton, Saline, White, Gallatin, and mines along the main line of the Illinois Central railroad between Vandalia and Carbondale in Clinton, Washington, Perry, and Jackson counties: Run of mine, $2; prepared sizes, $2.20; slack or screenings, $1.70.

Virginia and West Virginia, Pocahontas District, operations on the Norfolk & Western railroad and branches west of Graham, Va., to Welch, West Virginia, including Newhall, Berwind, Cane Brake, Hartwell, and Beechwood branches, also operations on the Virginian railroad and branches, west of Rock to Herndon, West Virginia: Run of mine, $2; prepared sizes, $2.25; slack or screenings, $1.75.

Texas Lignite Prices Fixed

Maximum prices governing the sale of lignite coal in the mines of Texas have been announced by the United States Fuel Administration.

Texas lignite prices as fixed in an order of the Fuel Administration confirming the order of the Federal Fuel Administrator of Texas and made effective as of March 5, are as follows:

Run of mine, $1.40; screened lignite with at least 15 per cent of screenings taken out, $1.50; screenings, 85 cents.

Map Directories of West Virginia and Kentucky Coal Mines

What are regarded as especially complete map-directories of coal mines on the Chesapeake & Ohio, Norfolk & Western, Viriginian, Kanawha & Michigan and southern end of the Coal & Coke Railroads, have recently been completed under the direction of Mr. W. D. Roberts, Editor of the *West Virginia Mining News* at Charleston.

These map-directories show locations of mines, name of company and general manager, seam worked, analysis of coal, car allotment and selling agent. Altogether eleven districts have been mapped separately.

Hundreds of operators and other individuals interested in the fields in question have secured copies of these map-directories, it is pointed out, and only recently Mr. Edward Page, Vice-President of the New England Coal & Coke Company of Boston, which has extensive interests in some of the fields mapped, declared of the publications, "A very attractive and convenient way of handling these fields."

ZONING SYSTEM GOVERNS SOFT COAL DISTRIBUTION

To Prevent Waste of Transportation Facilities Coal Supplies Must be Obtained from Most Accessible Fields

The Fuel Administration, in cooperation with the Director General of Railroads, announced, on March 23, a zone system to govern the distribution of bituminous coal during the coal year beginning April 1, 1918, and made public this statement:

"Heretofore coal has been distributed practically without regard to the distance between the mine and the consumer. Under the zone system coal will be distributed to consuming territory under restrictions that will avoid, as

COAL ZONE C

far as possible, waste of transportation facilities, but nevertheless consistent with the maintenance of the greatest possible production and a proper coal supply to all coal users. Every effort has been made, however, to preserve long established trade relations.

"We must have adequate coal supply in order to win the war, for otherwise we cannot make munitions or other war supplies, or build ships or use them when built. Without adequate coal supply, industries will be stopped, labor will be idle, and homes will go unwarmed.

"In view of these necessities and of the serious danger of coal shortage the Fuel Administration and the Railroad Administration have devoted several months to the study of what can be done to remove the causes

COAL ZONE K

which have hampered the enlargement of coal production. It has been found that a factor which has largely diminished the number of cars available for loading in the mines and the number of locomotives available to haul coal, is that, in a substantial sense, the country has been engaged in 'carrying coals to Newcastle;' cars and locomotives have been occupied for many unnecessary days in hauling coal hundreds of unnecessary miles in order to deliver it at places much more accessible to other coal fields, whence coal could be obtained with far less tax upon the transportation energies of the country.

"The Fuel and Railroad Administrations have, therefore, been confronted with the responsibility of deciding whether they shall knowingly be parties to this waste of transportation, which, if not wasted, could be used so as to make practicable the production of more coal sorely needed to carry on the war. It is clear that in the interest of the nation there should be a different policy for the future. The coal zoning plan is the result of this decision.

"After prolonged conferences with coal producers, jobbers, and consumers, and with the traffic and operating officials of the railroads, zones have been established so that coal supply shall be normally derived from mines relatively near, thus preventing these abnormal and wasteful transportation movements, insuring more equal distribution of cars to the mines, and more steady employment of mine labor.

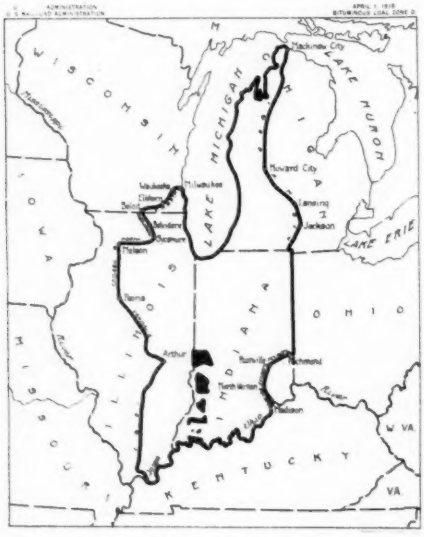
"The patriotic cooperation of the many interests and individuals who may be affected by this cutting out of unnecessary transportation is confidently hoped for. When a con-

sumer finds that he no longer has the opportunity to get his coal from a distant mine according to his custom, it is hoped that he will realize that his using another sort of coal is an essential part of the scheme of conservation in the interest of the national defense. When a coal producer finds that he no longer has a market to which, in the past, regardless of the unnecessarily long haul, he has sent his coal, it is hoped he, too, will realize that the resulting adjustment of his business is in the national interest; that there will be more cars and locomotives, and transportation energy to transport more coal from his mines to the markets he can reach within his zone; that his business in consequence should be increased rather than diminished.

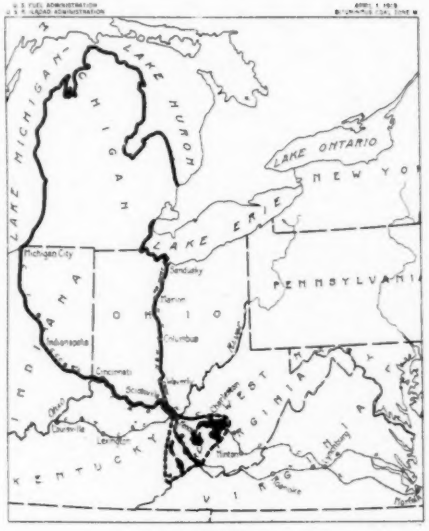
"The situation with which the Fuel and Railroad Administrations have thus had to grapple, is one of infinite complexity ,and no first effort to remove the waste can be perfect, or can fully meet all the constantly changing conditions. Realizing these limitations, the plan, as established, provides for elasticity through a system of special permits issued by the Fuel Administration when and as necessary.

"The general effect of the zone system is to restrict eastern coal to eastern markets and fill the vacancy in the central and western states with nearby coal produced in those states.

"In addition to the saving in transportation the system will provide for the possible retention of something like 5,000,000 tons of coal for the eastern states which heretofore has gone west all rail. This tonnage can be readily utilized in the east. As an indication of the



COAL ZONE D



COAL ZONE M

saving to be effected by the system, it will eliminate the movement of more than 2,000,000 tons of Pocahontas coal to Chicago and other western points over a haul of about 660 miles. Chicago can obtain this tonnage of coal, and under this system must obtain it from southern Illinois mines with an average haul of 312 miles. Allowing for the differences in quality in the two coals there will be thus saved 11,400,000 car miles or very conservatively figured, 285,000 car days. This will permit fourteen additional round trips of twenty days each from West Virginia mines to zone destinations, permitting an additional production of at least 700,000 tons of Pocahontas coal.

"Similar comparisons show that on the movement of 550,000 tons annually from Kanawha districts to Wisconsin points there can be saved about 2,500,000 car miles with a consequent increased production of some 300,000 tons. On the movement from southeastern Kentucky to Chicago the saving will be about 800,000 car miles and 50,000 tons production. The elimination of the Indiana to Iowa movement will save 1,600,000 car miles and permit 100,000 tons additional production. These are only a few of the instances of transportation saving to be effected by the system.

"The bituminous coal, the movement of which is regulated by the zone system, is about 300,000,000 tons, or 60 per cent of the total production. Based on this production there will be saved on the round trip from and to the mines almost 160,000,000 car miles. This will permit the same cars to make almost 300,000 additional trips from the mines, equivalent to an increase of 5 per cent in

the production. The increase in total production in 1917 over 1916, resulting from all efforts, was about 8 per cent.

"A large part of the coal which the system will prevent from moving west out of the eastern producing districts will be available for use in New England, in so far as it can be transported there. Production in the districts supplying New England, via all rail routes, can be increased somewhat, but there is difficulty in moving by all rail routes the amount of coal needed, and the capacity of the rail gateways to New England has been nearly reached. Improvements now being made will increase the capacity of the Poughkeepsie Bridge route, but it is impossible to escape the conclusion that provision must be made for a much larger movement by water in 1918 than in 1917, or New England and its people and indutsries will suffer.

"This situation will be made the subject of a separate study by a committee representing the United States Shipping Board, the United States Railroad Administration, the United States Fuel Administrator, coal operators in the territory involved, the railroads involved in the movement of this coal and consumers in the territory affected.

"The restrictions imposed upon the movement of coal by the zone system will make necessary some readjustment in fuel practices in various communities affected by these restrictions. The Fuel Administrator confidently expects the patriotic cooperation of every coal consumer who may be inconvenienced by reason of the use of fuel to which he has not been accustomed. The vast purposes to be served by the savings which the system effects will undoubtedly command the support of every user of coal.

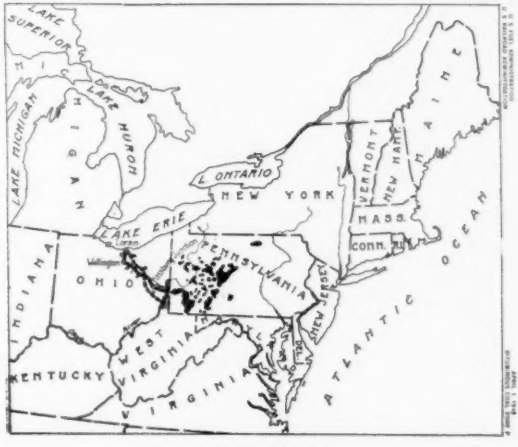
"Under regulations of the Fuel Administrator, coal of particular quality or characteristics for a special purpose, such as by-product gas, blacksmith, and metallurgical coal, will be permitted to move by permit beyond the limits imposed by the zone system. Permits will be issued to the individual consumers having need for this special purpose coal where a supply is not available in the producing districts which are permitted to ship into the consuming zone where the consumer is located. Applications for permits must be made to the Zone Permit Bureau of the United States Fuel Administration in Washington.

"The zone system affects all bituminous coal except, coal for railroad fuel for which special arrangements will be made by the Fuel Administrator and the Director General of Railroads; coal for movement on inland waterways which is in no way restricted by the system; coal delivered to Canada which is subject to regulations of the Fuel Administrator.

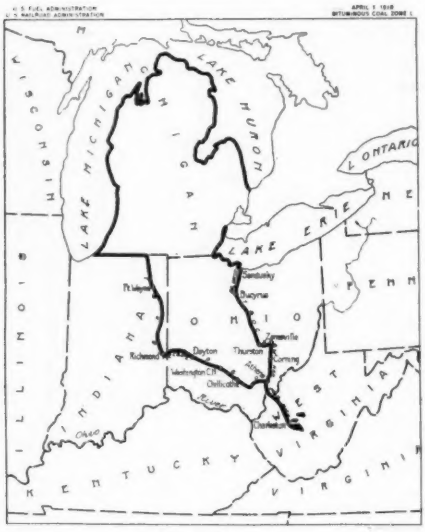
"Heretofore, many of the mines in many of the producing districts throughout the country have been unable to keep up their production in the summer months because of the decreased demand for their product. Under the zone system these producing districts have been allotted consuming territory which will demand a large increase in production. Thus, coal which has long been available, but not used, will be added to the aggregate supply for the country as a whole. Consumers in these zones must fill their bins during the coming summer, and keep these mines running every day of the week if these zones are to avoid serious coal shortage next winter.

"The early buying of next winter's supply of coal by consumers throughout the country is considered imperative by both the Fuel Administrator and the Director General of Railroads.

Ample production capacity has been assigned to each of the consuming zones outlined in the system, but these producing fields must



COAL ZONE P



COAL ZONE L

be kept working, as nearly as possible, at their maximum capacity if the system is to be a success.

"The method of enforcement of the zoning system is that the Fuel Administration prohibits distribution beyond the limits of the zone, and the Railroad Administration supplements these prohibitions by railroad embargoes. When permits shall be issued by the Fuel Administration to admit of distribution beyond the zone limits, such permits will operate as exemptions from the embargoes, and the embargoes will so provide."

ALUMINUM PRICES FIXED BY AGREEMENT

War Industries Board and Producers Agree on Maximum Price of 32 Cents a Pound

After investigation by the Federal Trade Commission as to the cost of production, the President has approved an agreement made by the War Industries Board with the producers of aluminium, fixing a maximum base price of 32 cents a pound at the various American plants, and their subsidaries, subject to revision on June 1, 1918; such price to cover lots of 50 tons and over of ingot of a grade of 98 to 99 per cent. The differentials now in force for the sundry grades, quantities and shapes, will continue in force for new contracts. Deliveries on "indirect government orders" to parties who now have contracts with the company producing aluminum at a base price in excess of 32 cents a pound shall be under such contracts, but the purchasing Government, on satisfactory proof that such amount has been delivered, shall get the benefit of a rebate amounting to the difference between the price such parties would be entitled to at a 32-cent base price and the contract price for the net weight of aluminum delivered to the Government, plus the weight of the necessary and proper amount of scrap.

Deliveries which have been made on direct or indirect orders, subject to adjustments shall be adjusted to the 32-cent basis.

The conditions of the agreement are:

First, that the producers will not reduce the wages now being paid; second, that they will sell to the Allies, to the public, and to the Government at the same price; third, that they will take the necessary measures, under the direction of the War Industries Board, for the distribution of the aluminum to prevent it from falling into the hands of speculators who might increase the price to the public; and fourth, that they pledge themselves to exert every effort necessary to keep up the production of aluminum so as to insure an adequate supply so long as the war lasts.

LITTLE CHANGE IN STEEL PRICES FOR NEW QUARTER

"The President has approved the recommendation of the Price Fixing Committee of the War Industries Board that the maximum prices heretofore fixed by the President upon the recommendation of the Board, upon ore, coke, steel, and steel products, subject to revision on April 1, 1918, be continued in effect until July 1, 1918; from April 1 to July 1, however, the maximum price of basic pig iron be reduced from $33 to $32 per gross ton, and that the maximum price of scrap steel be reduced from $30 to $29 per gross ton. No new contracts calling for delivery of any of said commodities or articles on or after July 1, 1918, are to specify a price unless coupled with a clause making the price subject to revision by any authorized United States Government agency, so that all deliveries after that date shall not exceed the maximum price then in force, although ordered or contracted for in the meantime. It is expected that all manufacturers and producers will observe the maximum prices now fixed."

Willing to do His Part

A prominent figure in the profession of mining technology writes the American Mining Congress as follows:

"I wish definitely to ally myself with the organization as a part of my patriotic duty to our country at this juncture. I conceive that at the moment your work has a definite value in its bearing on the public welfare, and I desire to assist to the measure of my abilities."

PETROLEUM INDUSTRY IN WAR SERVICE

Requa Points Way Oil Men Best Can Advance Interests of Allied Cause

Mark L. Requa, director of the Oil Division of the United States Fuel Administration, addressed the Petroleum Congress, at Chicago, March 29. He said:

This war cannot be won without an ample supply of petroleum products. We must have, if we are to succeed, not only fuel oil but gasoline, kerosene, and lubricants as well; for them there is no known substitute.

It is not possible to single out any one product and say of it, this is the most important for the winning of the war. We may say truly that the most important element is the spirit of the soul of the people, the morale of the Nation, but in dealing with our industrial life we have absolute need of many things. Food we must have, or perish; steel, copper, chemicals, petroleum—we have need for all of these, and more, or we must suffer defeat. From the standpoint of the winning of the war, not one of these products is more important than petroleum. It lubricates the machinery of our transportation and manufacturing, it plows our fields, drives our vessels at sea, and gives life to the airplane that watches over our soldiers and sailors.

Those who are engaged in the petroleum industry have a national obligation to perform, a personal responsibility and duty that they cannot escape even if they would. In a peculiar degree we are responsible for petroleum supplies, not only for our own forces but for the forces of the Allies as well. We are nearest to the scene of action; our ability to meet the increased requirements is the least questioned. Not alone have we the oil resources of the United States to draw upon, but the oil resources of Mexico are also at our command, thanks to the indomitable courage of American citizens who have developed those fields and made available those tremendous reserves. These resources of the Western Hemisphere afford a reserve supply that can and will meet any demand that may be made upon them.

It is the duty and the privilege of those engaged in the industry to make those resources available to the nation when and where needed; to anticipate months in advance the probable requirements, and plan accordingly. An oil well cannot be drilled in a day; pipelines, tank ships and tank cars cannot be constructed overnight; so that if we are to meet the requirements of six months hence we must outline procedure at once and work to those plans without interruption.

This should be done by the voluntary effort of the industry with the cooperation of the Government making possible greater efficiency. To accomplish the end sought by combined effort, to attain, united, those results that cannot be attained save by the most harmonious unity of action and purpose is the duty of the Oil Division and the oil trade.

It is a far cry from the days that mark the birth of the petroleum industry, and it is not my intention to review the history of those years. I take it that you are not so much interested in what has happened as in what may happen. This is neither the time nor place for an academic discussion of recorded facts; it is, however, an opportune time for considering conditions of today and possibilities of tomorrow.

It is not sixty years since the first oil well was drilled in the United States. The span of a single life can easily cover the space into which have been crowded the most marvelous accomplishments of any period of history. Into these few years have been compressed achievements which might well have been spread over centuries and even then there would have been left but few uneventful periods for the observation of the historian. What might well have taken a century has been accomplished in a year; the work of a year in a month, and the month's work has been finished while the hands of the clock traveled twice around the dial. Unsatisfied with these accomplishments we have striven constantly for greater achievement. The initiative and freedom-of-action of the individual has been the dominating motive-power behind the mighty effort. It is true that nature endowed our land with lavish hand, but under the rigid restrictions of an autocracy we should have failed in the development which is so characteristically American.

The golden days of our pioneer era are behind us. The assets in nature's storehouse, vast though they be, are no longer unknown quantities but in considerable degree have been measured, in part exhausted, and while there is much yet remaining it behooves us to pause and consider our stewardship; to plan for the future; to calculate the extent of our resources, and to use them wisely and well in the national interest—and at the same time with justice to the individual without whose energy these resources would have remained as unknown and undeveloped as under the ownership of the savage who lived in the forest primeval, fished in the rivers, hunted the buffalo on the plains, and remained to the end ignorant and unappreciative of the industrial possibilities locked in the rocks of our mountains or buried beneath the soil of our prairies.

The rise of the American nation will ever remain unparalleled in the history of the world. The achievements of this people will never be duplicated; the imprint made by them upon the pages of history never effaced. The world holds no unpopulated area wherein it is possible to find undeveloped resources such as those with which this country is so bountifully endowed. Time and circumstance will never again pass together over such a fruitful field. No period can again be so prolific in human advancement as the hundred

and forty-two years that mark the milestones of our national existence.

The term of our life as a nation has been preeminently the day of scientific and industrial achievement. It has been the day of the engineer. The hidden powers of steam and electricity have been discovered within this period, and the influence of those agents upon the mode of human living is still progressive. Our giant steamships have conquered the terrors of the ocean; our railroads have subdued the continent; the telephone, the telegraph, and the wireless have annihilated time and space; and the airplane vies with the eagle in the realm of air.

It is only as we think back over the last few decades that we realize the tremendous advance in all forms of locomotion and communication. The development of power and electricity in various forms, its application to stationary machinery, locomotion, and communication, has been the keystone of the arch upon which is built modern society. Eliminate these, and we revert to the Dark Ages. The Ancient Greeks and Romans enjoyed a civilization perhaps superior to our own; they lacked what we have achieved in the past hundred years: the control of steam and electricity.

And lacking that, the world through two thousand years made less progress than has been achieved in the past two hundred. Few of us pause to consider the tremendous difference between present methods of living and those of one hundred years ago. We accept the electric light as a matter of course, yet many of us can remember when gas was a curiosity and the telephone unknown.

A journey that then required days, and was the theme for family discussion for weeks in advance, is now accomplished in an afternoon. With all the comforts of our homes we now travel in four days from the Atlantic to the Pacific, and it is not even cause for passing comment. The land is girdled with bands of steel and wires of copper; the ocean teems with floating hotels, moving from place to place at express train speed in defiance of wind and wave; while beneath the white-capped surface, in the darkness of ocean's depths, the electric spark travels from shore to shore, bringing Cathay to our doorstep and forever debarring us from the privilege of world-isolation, much as we might desire such a fate. Much of this development has been made possible by lubrication, for which use petroleum stands supreme.

We may no longer hold aloof from the consideration of matters of international significance. Our Congress must consider not only the State of America, but the States of the World as well. It is not our choice. It is the evolution of world-history—the end of which no man may know. Science and industry have swept away the barriers of distance. The events of the world of yesterday are chronicled for us at the breakfast-table of today. The markets of the world are reflected daily in those of America. Verily steam and electricity have caused world-distances to shrink to the infinitesimal since Sir Francis Drake circumnavigated the globe.

The last century and a half has witnessed the conquest of a continent. From the forbidding shores of New England to the balmy lands bordering the Pacific the pioneer has steadily pushed forward, blazing new trails, carving out new states, building magic cities, until the frontier has disappeared and the tide of restless humanity rolls backward upon itself from the Golden Gate—and lo! the pioneer is gone; the frontier merely a memory. A new generation—in a Pullman car—follows the emigrant trail, with little thought of those who blazed the way and whose passing may be marked by a lonely headstone 'mid the snows of the Rocky Mountains or a skeleton bleaching on the sands of the Colorado Desert.

All honor to the hardy pioneer who braved with unfaltering courage the vicissitudes of those early days in the hope of wringing his reward from unwilling mother earth; to him the wreath of unfading laurel—that most prized of all tokens by the Ancient Greeks, typifying supremacy, endurance, and courage.

The problems of yesterday are not the problems of today. Then we saw a continent being wrested from the wilderness. Then the uninhabited prairie stretched away into the haze of the distant horizon. Land was to be had for the taking. The problem then was one of peopling that wilderness. We beckoned the stranger from the four corners of the earth to assist in its settlement; we gave with prodigal hand of the nation's assets to stimulate individual effort. Today the unsettled prairie is a thing of the past, and we begin to realize that our national resources, bounteous though they be, are not limitless and that time is fast approaching when we must husband what we still have and dole out our diminishing store with thrifty hand. No longer may the individual recklessly waste our natural resources, initiative must not be destroyed, the hoped-for reward must still be sufficient to promote untiring effort, but the citizen must be taught the lesson that he labors not alone for his own personal gain but as trustee of the nation's treasures which are not to be idly squandered or dissipated.

Much of the development that marks this wonderful epoch has been accomplished since the first oil well in Pennsylvania (1859) heralded the coming dawn of a new industrial era. Truly that event was momentous in the history of our national life. Steam power was beginning to shape events; the railroad was an accomplished fact; lubrication was more and more entering into the problem of industrial life; there was need of something to take the place of tallow and whale-oil. Petroleum supplied that need.

The story of the great petroleum industry is written on many pages and in many books. This is not the time or place to repeat what will forever stand forth in the pages of history as an accomplishment of first magnitude. Like all other industries, it progresses with

the years. The methods of yesterday are obsolete; those of today do not satisfy; and we look eagerly forward to what the morrow may bring forth in improved methods of production and refining. It is a far cry from the first crude efforts in oil distillation to the practices now in vogue, and yet we are safe in prophesying that the improvements yet to come will further advance the technology of the art.

As the application of steam and electricity grew, so grew the demand for more and better petroleum products. One to a large degree kept pace with the other. The original "puffing Billy" has grown into the Mallet Compound of today; the original Robert Fulton, wending laborious way down the placid Hudson, into the monster turbine-driven battleship. All these—all machines—have been dependent upon lubrication, upon petroleum; and the more recent advances in marine construction have been predicated upon the use of fuel oil as the means of steam generation.

We have witnessed in the past decade the rise of the internal combustion engine. Its profound effect on rural as well as urban life grows more and more manifest as the days go by; it competes with the locomotive and the trolley as a means of rapid transit; and as a method of distributing freight in our cities, plowing our fields, and providing healthful recreation it is rapidly superseding the horse. As an instrument of war it is of paramount necessity; driving the swift-flying airplane that serves as the aerial scout to our armies it makes possible observations for lack of which disaster would be the inevitable portion of our forces.

In the realm of the internal combustion engine, petroleum reigns supreme; it supplies the motive power; it lubricates the machinery; it is, in short, the life fluid without which neither motor vehicles nor airplane could serve the needs of humanity.

The internal combustion engine has created a demand for gasolene of hitherto undreamed-of proportions; it has made what was once considered almost a waste product into the most important element derived from petroleum distillation. Inability to supply the rising demand by recognized methods of refining has spurred inventive genius to new efforts, until today we have the new practice of pressure distillation with its resultant increase in gasolene output. He would be indeed a brave man who would dare prophesy the end of this evolution in refining methods. As the needs of the time require, new ways are found for the performing old tricks and the skill and inventive genius of the refiner keeps pace with the ever-mounting consumption of his products.

And what are our assets, with which to meet the demands which may be made upon us for petroleum? What is the strength of this young giant that responds to the nation's call to arms?

We have produced from the year 1859 to date a total of more than 4,250,000,000 barrels of oil. Our production has increased, by decades, from 500,000 in 1860 to 5,260,000 in 1870; 26,286,000 in 1880; 45,823,000 in 1890; 63,620,000 in 1900; 209,557,000 in 1910, and 330,000,000 in 1917. Over long periods the average increase has been about 7 per cent of the previous year's production. At this rate of increase we shall require 460,000,000 barrels per annum in 1917 and for 1918 if the average holds good we shall require an additional amount above last year's production of approximately 23,000,000 barrels. It will be forthcoming, of course; from the known fields, if necessary; and perhaps in part from new discoveries—the hope of making which lures ever onward the optimistic wildcatter, that virile pioneer of the oil fields who cheerfully takes the gambler's chance in the hope of reaping a reward commensurate with the risk.

We are beginning to realize, however, that our resources are not limitless. It is the consensus of opinion that the Appalachian, Lima (Indiana), and Illinois fields can add little in the way of increased production; leaving but three great known fields to meet our future requirements—Mid-Continent, Gulf and California.

The changes in the industry are startling; today a flow of oil, tomorrow a famine. Spindletop was discovered in 1901, and yet today the Southern Pacific brings oil from Mexico to supply its locomotives plying in Texas. We are confronted with constantly mounting consumption, and a constantly increasing percentage of exhaustion. Some day the lines must cross, production will no longer be able to keep pace with consumption and we must seek other sources of supply.

Any mathematically exact estimate of the petroleum yet to be extracted from the rock formations of the United States is, of course, impossible. Undeveloped areas now unknown may add very greatly to our present estimates. Speaking broadly, however, I think I am safe in saying that it is our duty to conserve most carefully our remaining stores. Locked in the earth, they are of course valueless. Do not misunderstand me or imagine that I am arguing against production, against wildcatting, against the individual effort having for its incentive an adequate reward. I believe all of these things must be done. But I am also of the belief that increasingly efficient methods of combustion, lubrication, and general conservation will materially alter practices that can be safely characterized as wasteful.

In viewing the petroleum industry from the government standpoint it necessarily means the viewpoint of national welfare in contradistinction to individual gain; it means the wise husbanding of our available resources so that they may last the greatest possible length of time, in contradistinction to producing the greatest quantity in the least time and converting into money the treasures of nature's storehouse.

With the exhaustion of our oil, or its advance in price, we have, of course, the altern-

ative of producing oil from shale. That there are enormous areas of such shales in the United States is well known among geologists and others who have taken the pains to investigate. These shales will undoubtedly in time be mined for oil, but we must remember that to produce a quantity of oil equal to our present production we shall have to mine a daily tonnage of shale in excess of the tonnage of coal now mined daily. The magnitude of such an undertaking is obvious. It will not be the growth of a day, but of years. And it is entirely likely that because of plentiful supplies of oil which may be brought to the United States by water—cheap oil from Mexico and Central America—it will be many years before these shales are utilized.

The technology of production has advanced with tremendous strides. Drilling tools of twenty years ago seem but toys as compared with those now being used. More and more the rotary supplants the cable. And more and more the technology of the industry approaches the scientific. The old rule of thumb gives way to the calculations of the engineer. The old order passeth, and with it, I suspect is passing the old type of wildcatter, who is being superseded by the scouting geologist trained in the study of rocks. We are learning as the years go by that there is much for the geologist to do; he may not always tell us where oil lies buried, but often he can tell us where it is hopeless to make the attempt to find it.

And if this be true, it is important that his services be utilized to the maximum. Economic waste in whatever form is, or should be, repugnant to the forward-looking citizen who discerns, perhaps, on the distant horizon the possibilities of fierce competition for the trade of the world, following cessation of war. Europe has learned much in the past three years. The stern necessity that has imposed unparalleled economic discipline upon the people of Europe will not disappear or be forgotten with the coming of peace. The iron has sunk too deeply into the soul, the lesson has been too bitterly impressed to permit relapse after the war into conditions of ante-bellum days.

We have wasted in the past because there was not incentive to save. To our ancestors the forest seemed limitless, the mines inexhaustible, the uninhabited lands to the West ending. We no longer harbor such illusions, but rather do we ask in questioning doubt, from whence shall posterity supply its needs for lumber, for the products of the soil and of the mines?

The pressure of increasing population has much to do with the cause of this war. For a time we viewed the conflict from afar; we sought in vain that isolation that was impossible; we clung desperately to the hope that the cup might not be forced to our lips, that we should not be compelled to drink the bitter dregs. Our hopes were in vain. It was our liberty as much as France or England's that was at stake; it was our destiny to help maintain democracy; to combat on the field of battle the world ambition of autocracy. We are engaged in that struggle; we have the one paramount task to perform; we must see to it that the torch of freedom kindled at Bunker Hill shall not be extinguished; that the cold and unsympathetic rule of autocracy shall not overrun the world.

This is no time to quibble over technicalities; no time to debate the power of the Government to perform any proposed act. We are at war. The life of the nation is at stake. The preservation of our national existence if of such paramount importance that nothing else really matters, compared with that duty. I have little patience with the individual who believes in the doctrine of business as usual. Business is not "as usual" —and will not be so long as the war lasts.

Each month during the war the priority demands of the Government will become more and more insistent, the duty of the citizen to supply those demands more and more clearly defined.

If zonal distribution of petroleum products is necessary to supply national needs, zonal distribution will be accomplished. If pooling of tank cars and ships will more efficiently meet national demands, those facilities will be pooled. If well-drilling supplies must be allocated in order to produce the greatest quantity of oil to meet the increasing demands for oil, well-drilling supplies will be allocated. If licensing of jobbers and others is necessary, they will be licensed. If the petroleum industry, or any part of it, is so unwise as to engage in profiteering, ways and means will be found to correct that condition. In short, whatever the national needs may be, everything that is necessary will be done to meet those requirements. President Lincoln summed up the case when he said in 1863, "I think the Constitution invests the Commander-in-Chief with the law of war in time of war."

Government control does not necessarily signify disaster to an industry. It may be entirely necessary to assist the industry controlled, in performing its normal functions which, because of war's dislocating effects, are impossible of performance in the normal way. We face a condition of shortage today in many lines of basic products—steel, coal petroleum, copper, manganese, sulphuric acid, ammonia—and many other important products are, for one reason or another, in demand in excess of the supply. Whether it be actual shortage or lack of transportation the result is the same; there is not enough to go around and satisfy all demands. The manufacturer of oil well supplies finds it difficult, if not impossible, to secure raw material to meet his manufacturing needs; the owner of tank cars is unable to secure satisfactory deliveries of cars ordered months ago; the refiner of oil is harassed because of inability to supply his plant with the materials necessary to permit continuous and efficient operation.

Single-handed, or even united by trade asso-

ciations, the individual stands but little chance in competition with governmental departments possessing all the power of priority orders and commandeering. Unless there is some governmental department charged with sympathetic supervision, it is quite conceivable that in the fierce competition for priority the unrepresented interest will fare badly.

I do not want you to misunderstand my meaning or conclude that because certain possibilities are discussed action will follow. We must endeavor to consider and discuss every phase and angle of the question, and to anticipate the needs of the time; we must cooperate in finding solution for the problems as they are presented; and if the industry cannot effect the solution, the function of the Oil Division is to step in and help; keeping always in mind a few simple fundamentals that may be summed up in the statement that normal channels of trade should, so far as possible, go undisturbed, that detail operation of business should be left in the hands of those men who have made it what it is and that the function of the Oil Division is to assist with governmental aid in making possible those obvious changes which the industry cannot accomplish alone and that, when accomplished, permit more effective discharge of the obligations and the performance of the patriotic duty owed to the nation.

The war service of the petroleum industry is of the highest importance. It should be looked upon as a priceless privilege to assist in winning this war. The honor of patriotically, promptly and efficiently performing that service should be guarded with the same jealous care with which you guard the welfare and sanctity of your homes.

This war cannot be won without petroleum, and you have each your part to do in providing that commodity. Your responsibility is no less great than the soldier's in the front line trench; your failure to discharge that obligation no less treasonable. You must keep our industries supplied with the petroleum products so vitally necessary for the production of those things that will make it possible for our air squadrons to sweep the skies, our soldiers and sailors to triumph over our foes, and to prove for all time that a free people in defense of their liberty will gladly and willingly sacrifice their all to the end.

PRICES REVISED IN WASHINGTON, OKLAHOMA AND ARKANSAS

Maximum prices at which coal may be sold at the mines have been fixed by the United States Fuel Administration for fields in the states of Washington, Oklahoma, and Arkansas. The prices became effective March 29.

Reductions in prices during the summer months are provided for in the price fixing order as to Arkansas and Oklahoma.

The prices named for mines in Washington are as follows: Screened coals; bituminous. Kittitas county: Run of mine, $3.55; prepared sizes, lump and egg, $3.95; special steam and gas, $3.25; slack, $2.50. Sub-bituminous, Lewis and Thurston counties: Run of mine, $2.75; prepared sizes, lump, $3.95; lump nut, $3.25; nut, $3; slack, $1.25.

Washed coals.—Bituminous, Kittitas county: prepared sizes, $4.00. Pierce, King, Lewis, and Skagit counties: prepared sizes, lump nut, $6; mixed steam, $5.25; straight steam and gas, $4.80; slack, $2.50. Sub-bituminous, King county: prepared sizes, lump nut, $5; pea, $3.50; buckwheat, $3.25; and slack, $1.50. Lewis county: Lump, $3.95; nut, $3.75; pea, $3; buckwheat, $1.50; slack, $1.25.

Preparation of coal mined within the state of Washington shall conform, the Fuel Administration order says, to reports submitted to, and approved by, the State Mine Price Board, subject to such further modifications as may be approved by the State Fuel Administrator.

Classifications and prices for bituminous coal at the mines in Arkansas are as follows: Johnson, Franklin, and Sebastian counties, except the Excelsior district: Run of mine, $3.70; prepared sizes, $4.60; slack, $2.40. Logan and Scott counties, and the Excelsior district of Sebastian county, namely, the mines on the Midland Valley railroad; (*a*) north of Montreal Junction, and (*b*) east of Hackett and west of, but not at, Greenwood: Run of mine, $4.35; prepared sizes, $5.15; slack, $2.60. These prices do not include the 45-cent allowance to operators who have complied with the Washington wage increase agreement.

Summer reductions in prices on all grades except slack, are as follows: March, 75 cents; April, 60 cents; May, 45 cents; June, 30 cents; July, 15 cents. On August 1 the base price is again effective.

Oklahoma prices announced were: Leflore, Haskell, Okmulgee, Tulsa, Rogers, and Coal counties and the Hartshorn-Wilburton vein in Pittsburg and Latimer counties: Run of mine, $3.70; prepared sizes, $4.60; slack or screenings, $2.40.

McAlester vein in Pittsburg and Latimer counties: Run of mine, $4.25; prepared sizes, $5.10; slack or screenings, $3. Summer reductions on all grades, except slack, are provided for and are the same as those made applicable to the Arkansas mines mentioned in the order of today.

Operators who have complied with Washington wage agreement are authorized to add 45 cents per ton on account of the advance in wages.

Inasmuch as the orders relating to the three states in which prices were fixed today deal with reclassifications of territory, no comparison is made with former prices at the mines affected.

E. J. Newbaker, Division Superintendent of the Wyoming Division of the Lehigh & Wilkes-Barre Coal Company, has resigned his position and will hereafter be associated with the Berwind White Coal Company, with headquarters at Philadelphia, Pa.

COAL PRICES ANNOUNCED FOR COLORADO, MONTANA, WYOMING AND UTAH

Maximum prices at which coal may be sold at the mine were announced recently by the United States Fuel Administration covering coal operations in the states of Colorado, Montana, Wyoming and Utah.

Maximum prices for Colorado lignite were also established in the order. Provision is made for reduction in price of Colorado coal during the summer months. The prices became effective March 11. The maximum prices for the four states mentioned in the two orders are:

Colorado: Bituminous domestic coal, domestic field, run of mine, $2.25; prepared sizes, $3.50; slack or screenings, $1.25. Bituminous steam coal, Trinidad district, run of mine, $2.35; prepared sizes, $3.25; slack or screenings, $1.65. Lignite coal, run of mine, $2.25; prepared sizes, $3.25; slack or screenings, $1.

The above prices are subject to the following reductions: Bituminous domestic coal, April 1, 70 cents; May 1, 50 cents; June 1, 35; August 1, 15 cents. The summer reductions in the Trinidad district on bituminous steam coal are April 1, 40 cents; May 1, 30 cents; June 1, 20 cents; July 1, 10 cents.

These prices do not include the 45 cents per ton allowed to operators who have advanced wages in compliance with the Washington wage agreement.

The former price in Colorado were: $3.00, for run of mine bituminous domestic; $4, for prepared sizes; and $1.50 for slack or screenings. Former prices on lignite were $2.45, $3.50, and $1.25, respectively.

Prices for Montana, Wyoming, and Utah coal were made uniform in the order issued today, and are as follows: Run of mine, $2.65; prepared sizes, $3.30; slack or screenings, $1.50.

The former prices in these states were: Utah, $2.60, $2.85, $2.35; Wyoming, $2.50, $3.50, $1.25; Montana, $2.70, $3.60, and $1.50, respectively.

The order as to the three last-named states is effective at 7 a. m., March 11, and also does not include the 45 cents allowed to such mines as have complied with the terms of the wage agreement.

COMMERCIAL AGREEMENT WITH SPAIN IS CONCLUDED

The negotiations between the United States and Spain for the conclusion of a commercial agreement have been brought to a successful conclusion.

These negotiations have been of a three-sided character, dealing not only with the trade between the United States and Spain but also with arrangements for a French credit in Spain. The American representatives have been able, in addition to securing considerable amounts of desired supplies for General Pershing's forces in Spain and satisfactorily arranging the problems of American exports and imports, to materially assist the French Government in securing a large credit in Spain to finance payments for the supplies which the republic draws from Spanish sources.

Under the agreement Spain permits free export to the Allies of pyrites, minerals and manufactured wool, a concession of decided value to the Entente Powers, and the export to the extent permitted by home requirements of various other commodities, in addition to the specific licensing of the supplies required by General Pershing. In return the United States assures to Spain its necessary supplies of cotton and petroleum, the amount of the monthly export of these commodities being fixed in the agreement at a figure which will cover the genuine Spanish requirements but bar the possibility of German agents in Spain secretly buying up and hoarding a stock of cotton against the time of the conclusion of peace. Spain is granted other supplies to the extent that they can be spared after satisfying home requirements in the United States and providing for the needs of its associates in the war. As has already been stated special concessions have been made in regard to locomotives and railway material, which are required to increase the carrying capacity of the Spanish railway system—a measure of decided importance to America and its associates which are drawing supplies from Spanish territory.

GRAPHITE IMPORTATIONS CUT DOWN DECIDEDLY

The Committee on Mineral Imports and Exports, consisting of Messrs. C. K. Leith, Pope Yeatman and J. E. Spurr, representing the Shipping, War Trade and War Industries Boards, have reported to Dr. E. F. Gay, of the Shipping and War Trade Boards, recommendations concerning the restriction of graphite imports from Ceylon and Madagascar, and the same has been duly approved of by the War Trade Board and will be made a basis for future licensing of graphite imports. This will apply principally to Ceylon as very few imports are coming from Madagascar. In accordance with the recommendations, a three-months embargo has been made upon importations of graphite, and the importation for the remainder of the year will be limited to 5,000 tons. The usual annual importation of graphite from Ceylon and Madagascar is about 25,000 tons, but the stocks on hand are very considerable constituting a margin of safety for this program.

The principal sources of the domestic supply are in Alabama, and the reduction of importation is made on the assumption that the production from this district will be considerably increased. This the Alabama producers are very confident can be done.

EXPECT NO DROP IN PETROLEUM PRODUCTION

Oil Well Supply Men Agree to Cooperate with Fuel Administration and Expect no Shortage of Oil Well Supplies

Representatives of the oil well supply trade of the United States at a conference with representatives of the Oil Division of the United States Fuel Administration, promised fullest cooperation to prevent any diminution of production through any shortage of supplies.

One of the purposes of the meeting was to obtain a survey of the requirements of the oil well supply industry. Complete cooperation on the part of the Fuel Administration was promised in the matter of coordinating the needs of the oil men so as to balance production in such a way as to meet all requirements.

Mark L. Requa, director of the Oil Division of the Fuel Administration; Thomas A. O'Donnell, chief of the Department of Oil Production in the Fuel Administration; and A. C. Bedford, chairman of the Petroleum War Service Board, addressed the conference. The conference was presided over by J. H. Barr, of Pittsburgh.

Tentative plans were discussed for arranging for priorities in the matter of all kinds of supplies in which a possible shortage was indicated. About fifty men, representing the oil well supply trade in all parts of the country, attended the meeting.

REGULATIONS ISSUED GOVERNING THE LICENSING OF JOBBERS

Rules and regulations governing the distribution of coal and coke through jobbers have been issued as follows:

Rule 1. A licensee who, as owner or selling agent for another, sells coal or coke without physically handling the same on, over or through his, or its, own vehicle, dock, trestle, or yard, shall not ask, demand or receive for such coal or coke more than the priced fixed by the President or the United States Fuel Administrator for such coal or coke f. o. b. cars at the mines or ovens, and in effect at the date of the sale thereof, plus five (5) cents per ton of 2,240 pounds of anthracite coal, when such licensee incurs the expense of rescreening such coal at Atlantic or lake ports for transshipment by water.

Rule 2. A licensee who acts as purchasing agent of coal for and by authority of a retail dealer or consumer without becoming the owner thereof, may charge a purchasing commission not exceeding (a) the sum of fifteen (15) cents per ton of 2,000 pounds of bituminous coal, (b) five (5) per cent of the delivered price of smithing coal when certified in writing by the retail dealer or consumer that such coal is to be used for smithing purposes only, (c) the sum of twenty (20) cents per ton of 2,240 pounds of anthracite coal when delivery of such coal is to be effected at or east of Buffalo, or (d) the sum of thirty (30) cents per ton of 2,240 pounds of anthracite coal when delivery of such coal is to be effected west of Buffalo, provided that such licensee may add to such purchasing commission five (5) cents per ton of 2,240 pounds of anthracite coal when such licensee incurs the expense of rescreening such coal at Atlantic or lake ports for transshipment by water. The combined purchasing commissions of any number of licensees who act for a retail dealer or consumer in the purchase of a given shipment or shipments of coal shall not exceed the commissions herein allowed for one licensee. No licensee shall charge any purchasing commission as purchasing agent of coke for a retail dealer or consumer. Any coal or coke purchased by a licensee for any consumer or retail dealer may be charged and invoiced to such licensee as agent.

Rule 3. No licensee shall ask, demand or receive any commission, charge or profit as broker or purchasing agent from any consumer or retail dealer for the purchase of any coal which is owned by such licensee, or in which he or it has any direct or indirect interest, or for selling which such licensee is entitled to receive any commission or compensation as selling agent or otherwise, or which was produced from a mine controlled, directly or indirectly, by such licensee, or by the controlling owners of such licensee, or from a mine whose owner or the stockholders, members, or partners who control such owner also control directly or indirectly such licensee.

Rule 4. No licensee shall rebate or pay to any owner of a mine producing coal or to any person directly or indirectly interested therein, either as stockholder, partner, member of association or otherwise, any part of any commission, charge or profit received by such licensee.

Rule 5. No person exclusively employed as salesman by a single producer or exclusively employed as purchasing agent by a single consumer, shall be required to procure a license for the performance of his duties as such salesman or purchasing agent.

Rule 6. Contracts relating to bituminous coal made before the President's Executive Order of August 21, 1917, and contracts relating to anthracite coal made before the President's Executive Order of August 23, 1917, which are bona fide in character, and enforceable at law, shall not be affected by Rule 1 hereof, but coal purchased or sold under such contracts shall be governed by paragraphs 8, 9, 10 and 11, (as modified by the order of the United States Fuel Administrator, dated November 8, 1917) of

publication No. 9 of the United States Fuel Administration.

Rule 7. Every license shall be in such form and shall contain such terms, provisions, limitations and restrictions as the United States Fuel Administrator may from time to time prescribe, and the same shall be subject to modification and revocation by him, and shall be issued and held subject to these and such further rules and regulations as he may from time to time establish.

The above rules and regulations approved and promulgated this 15th day of March, 1918, to become effective 7 a. m., April 1, 1918.

H. A. GARFIELD,
United States Fuel Administrator.

Approved:
WOODROW WILSON.

20 CENTS MORE FOR OPERATORS WHO CLEAN THEIR COAL

Great improvement in the quality of bituminous coal is expected to result from an order issued by the United States Fuel Administration, under which operators who use special means for eliminating impurities from their products, will be permitted to add 20 cents a ton to the government prices for coal at the mine.

Comparatively few veins of bituminous coal are wholly free from slate and carbon. Many of them contain such large percentages of those, and other impurities, that their separation from the coal necessitates the use of mechanical appliances, and the employment of additional labor. The expense incident to this work materially reduces the profit of operating such mines.

The objects of the Fuel Administration in offering to allow increases to such operators were to stimulate production, and to insure a better quality of coal to consumers dependent upon such mines.

The offer of the Fuel Administration embraces the period from April 1 to July 31, 1918, and operators who desire to take advantage of it can do so by applying to the Legal Department of the Administration for permits. These permits will be extended beyond August 1 in all instances in which it appears proper to take such action.

Operators holding permits will be required to make monthly reports to the Fuel Administration, and the allowances to each operator will be based upon the expense shown to be involved in eliminating impurities from his product.

Retail dealers will not be permitted to add to their prices the allowances made to the operators, unless they also obtain permits from the Fuel Administration.

All coal prepared in conformity with the requirements of the Fuel Administration will be designated by cards placed in the cars in which such coal is loaded, and by notations on the invoices for the coal.

REVISED FUEL OIL REGULATIONS ISSUED

Changes Made to Remove Discrimination Found to Exist Against Small Dealers

President Wilson, acting through the United States Fuel Administrator, on March 25 promulgated revised rules and regulations governing the distribution of fuel oil in that section of the United States east of the Rocky Mountains. These regulations supersede those issued January 31, 1918.

Under a proclamation issued by the President, January 31, 1918, every manufacturer and distributor of fuel oil (including gas oil) whose gross sales aggregate more than 100,000 barrels per annum, was required to secure a license from the Fuel Administration on or before February 11, 1918. The regulations promulgated today control these licenses.

The reason for revising the regulations is that under the former provisions it was found that distributors controlling only a small supply of fuel oil were unable to meet the requirements of all their customers. Distributers controlling larger supplies, however, were able to meet the requirements of all consumers on the priority list. This situation worked a hardship to the customers of the smaller distributors and deprived essential industries of their fuel oil.

Under the new regulations if a distributor is unable to meet the requirements of all of his preferred customers, another distributor may be required by the Fuel Administration to meet this demand before he is allowed to supply his own customers who are not on the preferred list.

Twelve classes of consumers are specified in these regulations, and manufacturers and distributers are required to give priority in the distribution of fuel oil to them in the order in which they are named.

Deliveries must be made in conformity with this list regardless of any existing contracts between licensees and consumers in other classes. After the requirements of consumers entitled to priority are satisfied, licensees must carry out their contracts for other deliveries to the extent of their supplies.

The rules and regulations are as follows:

"These rules and regulations are promulgated by the President, acting through the United States Fuel Administrator, for the purpose of assuring an adequate supply and equitable distribution of fuel oil for purposes vitally essential to the national security and defense and to the successful prosecution of the war.

"The shortage in the amount of fuel oil which can be delivered, because of transportation conditions, is such that it is clearly a wasteful and unreasonable practice to deliver such fuel oil for uses which are not intimately and directly connected with the prosecution of the war.

"Rule 1.—No licensee engaged in the distribution of fuel oil in that part of the United States east of the Rocky Mountains, shall, without the consent of the United States Fuel Administrator, make any deliveries of fuel oil to any customer or consumer of any one of the classes mentioned below, whether the licensee is under any contract to make delivery to such customer or consumer or not; until such licensee shall have delivered to the customers or consumers of every class designated by a lower number with whom such licensee may have contracts, or to whom such licensee shall have been directed to deliver by order of the United States Fuel Administrator, all fuel oil to be delivered upon such last-mentioned contracts or such orders of the United States Fuel Administrator. Preferential deliveries as between members of the same class may be made only with the consent and under the direction of the United States Fuel Administrator. This rule shall apply to all deliveries of fuel oil, regardless of any contracts therefor or hereafter made.

"Provided that this rule shall not prevent the delivery of fuel oil by any licensee to any jobber or distributer if such fuel oil is to be used for a purpose for which the licensee could deliver such oil direct, nor in any case where the jobber or distributer shall have been licensed or designated by the United States Fuel Administrator.

"The classes referred to and the order of their preference are as follows:

"1. Railroads, bunker fuel and oil refineries using or making fuel oil.

"2. Export deliveries or shipments for the United States Army or Navy.

"3. Export shipments for the navies and other war purposes of the Allies.

"4. Hospitals where oil is now being used as fuel.

"5. Public utilities and domestic consumers now using fuel oil (including gas oil).

"6. Shipyards engaged in government work.

"7. Navy yards.

"8. Arsenals.

"9. Plants engaged in manufacture, production and storage of food products.

"10. Army and Navy cantonments where oil is now being used as fuel.

"11. Industrial consumers engaged in the manufacture of munitions and other articles under government orders.

"12. All other classes.

"Rule 2.—Licensees shall promptly comply with all orders of the United States Fuel Administrator with respect to the delivery of fuel oil, the submission of reports, and other matters proper and necessary to carry into effect the President's proclamation of January 31, 1918.

"Rule 3.—Neither these rules and regulations nor the orders of the United States Fuel Administrator shall relieve any licensee from his obligation to deliver fuel oil which he has contracted to deliver as soon as the prevention resulting from such rules, regulations, or orders shall have ceased to operate and the fuel oil shall be available for delivery under such contracts.

"These rules and regulations shall apply to all licensees heretofore or hereafter licensed under the proclamation of the President dated January 31, 1918, and shall supersede the rules and regulations issued with the approval of the President on that day.

"H. A. GARFIELD,
"United States Fuel Administrator.
"Washington, D. C., March 19, 1918."

URGES THAT NO MINE CONTRACT ITS FULL OUTPUT

It is the desire of the United States Fuel Administration that consumers obtain their bituminous coal supplies from the usual mining districts unless prevented by the zone districts.

If contracts are made, it is preferred that not more than 65 per cent of a mine's production be contracted for, based on last year's output, leaving the remainder to move on current orders and instructions from the United States Fuel Administration. Large consumers, including railroads, who contract for their fuel requirements, should not contract for more than the foregoing proportion of the output of any one mine or coal mining company.

The closer these suggestions are observed, the less interference there will be with the normal movements of coal and the usual relationships between consumers and producers.

DR. F. C. HONNOLD SELECTED FOR IMPORTANT PLACE

Appointments of a district representative and a number of assistants for the states of Illinois and Indiana were announced by the United States Fuel Administration today.

F. C. Honnold, of Illinois, was named district representative of the Fuel Administration for the two states and will have headquarters in Chicago.

C. G. Hall, of Terre Haute, Ind., was appointed deputy district representative for Indiana and the following assistant district representatives were named:

For Illinois—O. G. Scott, Springfield; P. H. Greenlaw, St. Louis; J. A. Fenelon, Galesburg; T. R. Carty, J. L. Keiflin and Charles O. Ostrom, Chicago.

For Indiana—Jonas Waffles, Terre Haute; C. J. Fletcher, Indianapolis; H. W. Little, Evansville, and Eugene Wardlaw, Brazil.

The district representative and his assistants will represent the Fuel Administration in the coal fields of Illinois and Indiana and will cooperate with the operators, the railroads and the public in delivering and executing the orders of the administration and in the movement of coal.

DR. GARFIELD URGES EARLY BUYING BY DOMESTIC USERS

"We begin the new coal year of 1918-19 with an obligation resting upon every citizen of the United States to do his part," says Dr. H. A. Garfield in a formal statement. "In order that the coal supply of the country may be made adequate to meet the home needs of our people and the ever increasing demands for coal for fuel which grew out of the conflict in which we are now engaged. The Fuel Administration must have the support and the active cooperation, not only of those who are engaged in production and distributionof fuel, but of every coal user in the country. Each must bear his share of the patriotic sacrifice which must be made if the coal supply is to be properly increased and adequately distributed.

"An adequate coal supply is vital to the winning of the war. Without it we cannot make munitions or other war supplies or build the ships which must carry men and materials to the battle front. Without it industries will be stopped, labor thrown out of employment, and the homes of the people will be cold.

"Guided by the experiences of the past winter, the Fuel Administration has taken the necessary steps to clear the way for the ceaseless activity of the mines of the country in increasing the supply, and for the steady, swift distribution of the nations' fuel as rapidly as it can be taken from the ground and moved over our over-burdened transportation systems.

"The prices fixed by the Government for coal at the mine have now been established on a stable foundation which will not be disturbed during the coming coal year, except in cases of extraordinary urgency. These prices have been adjusted by scientific and practical investigation based upon uniform cost sheet reports to insure the greatest possible stimulation of production while maintaining a reasonable and equitable price of coal to the consumer.

"By carefully drawn regulations the Fuel Administration has insured the shipment of 'clean coal' from the mines. Coal containing an undue amount of foreign matter will be penalized in price, and producers who take extraordinary measures in the preparation of their coal will be recompensed. These measures will keep off the railroads and out of the bins of the consumers a large amount of unburnable material which was included in last year's coal production.

"Every effort has been made by the Fuel Administration to so arrange the distribution of the coal supply that it will impose the least possible burden upon the railroads of the country. Through the zone system of distribution, which becomes effective April 1, the movement of bituminous coal between the mine and the producer will be restricted to the shortest possible transportation lines consistent with the maintenance of an adequate and proper coal supply to all consumers.

"In arranging these restrictions, the Fuel Administration, in many cases, has allotted to consuming territory producing fields which can only fill the demand of the consumers they must supply, if production is maintained steadily throughout the coal year. The Fuel Administration expects the coal consumers, continuing their patriotic cooperation with the Government in all its war measures, to maintain a steady and constant demand for coal in order to attain this result. Consumers must buy their winter supply of coal during the spring and summer for storage during the winter if the production is to be maintained at a maximum and the country enabled to avoid a serious coal shortage this winter. The Fuel Administration will cooperate with all communities in an effort to provide storage for emergency stocks of coal to be set aside, during the spring and summer, to meet emergencies of weather and transportation which may arise next winter.

"But the great storage capacity of the country lies in the bins of the individual consumer, and there the country's coal reserve must be built up during the spring and summer when coal production is unhindered and the transportation facilities of the country operating at their highest efficiency.

"As an inducement to 'early buying' the prices of anthracite coal have been reduced 30 cents a ton on all domestic sizes from April 1 to August 31, and, in many of the bituminous fields, prices have been cut to an even greater extent.

"To safeguard the consumer the Fuel Administration has prescribed regulations to prevent profiteering and to govern the distribution of coal by licensed jobbers and by retailers. Each domestic consumer will be permitted to secure a full normal supply of coal, but no more.

"Every ton of coal that is hoarded against future needs and is not used during the winter is actual waste. The labor and transportation used to bring the coal to the consumer, and the actual energy of the coal itself are withheld from doing their part towards speedy victory. Consumers should secure just a little less coal than they believe they need and should make every shovelful give its full value in heat and power. Every shovelful saved means help for the industries in turning out supplies for our troops abroad, help for the ships that must bridge the 3,000-mile gap between our shores and the battle front, and help toward ultimate victory."

To Do Best to Increase Output

With the new coal year the consuming public has been assured that the anthracite industry is doing everything with a view to increasing the output. Urgent calls have been sent out by the operators for more mine workers, in an effort to increase the present army of 153,000 men up to the normal force of 1915, when there were 177,000 mine workers in the region.

Exports to Canada Licensed

Permits have been issued by the United States Fuel Administration to a large number of coal operators allowing exports of coal to Canada. The permits cover the months of April, May, and June.

No export licenses are required for individual shipments of coal into the Dominion, but the allotments, as given in the permits, limit the amount of coal shippers are at liberty to send to Canada during that period.

C. A. MacGrath, Fuel Controller for Canada, with headquarters in Ottawa, by arrangement with the United States Fuel Administration, has been granted considerable tonnage, and he has the privilege, for the period mentioned, to call upon the Fuel Administration to issue permits to any shippers who apply to him.

Allotments of coal to Canada during the past season were upon the same basis as if Canada were one of the states of the Union. While this country exports a considerable tonnage to her sister nation on the northern boundary, Canada also furnishes a large amount of coal to this country. The mines of British Columbia turn out much of the product that is used in the northwestern part of the United States.

Retail Regulations Promulgated

Regulations covering the retail distribution of coal for the coal year of 1918-19, have been promulgated. The plan is designed to secure the most equitable distribution of domestic coal supplies possible. The National Retail Coal Merchants' Association has assured the Fuel Administration of the complete cooperation of its members in carrying out the plan.

The plan, while laying down the general principles which must cover the retail distribution of coal, is held to be sufficiently flexible to allow local Fuel Administrators readily to accommodate the regulations to their local conditions.

Under the plan the Fuel Administration will encourage the purchase and storage of coal and coke for domestic requirements as early as possible. As an inducement to the early purchase of coal for domestic use, a general reduction in the price of anthracite, the bulk of which is used for domestic consumption, will become effective April 1.

Must Perform Service

One of the main purposes of the United States Fuel Administration in adopting the rules governing the licensing of distribution of coal was to give the consumer or retail dealer a definite and specific option as to employing a purchasing agent.

This option, however, must be an actual one. If there is direct or indirect control between the licensee as purchasing agent and the mine owner, no purchasing commission will be allowed.

If the licensee is in a position to dictate the policy of the mine owner so as to prevent him from selling to any consumer or retail dealer who has not employed the licensee as purchasing agent, the presumption will arise that there is direct or indirect control.

The test of control will not be limited to the ownership of a majority of stock.

Licensees are not to be allowed to inject themselves as middlemen in the handling of coal unless their services are required in a bona fide way by the consumer or retail dealer.

Where licensees attempt to obtain the purchasing agent's commissions, unless specifically employed as purchasing agent, it will call for a revocation of their license to engage in the business of distributing coal.

Coke Representatives Named

To facilitate the apportionment and distribution of coke and to assure prompt and equitable allotment of emergency orders among shippers, the United States Fuel Administration has appointed District Coke Representatives in Chicago and Detroit, Michigan. The necessary organization to properly conduct the activities of these subsidiary branches of the Fuel Administration are being established.

J. A. Galligan of Chicago has been named as District Coke Representative for that territory. James A. Ballard of Detroit has been appointed for similar duty in that part of the country.

Somerset Field Enlarged

The United States Fuel Administration enlarged the Somerset field in Pennsylvania when an order was issued adding to it the coal mining operations on the Baltimore & Ohio Railroad and from the Somerset county line to and including Indian Creek and the Indian Creek Valley branch of the Baltimore & Ohio Railroad.

Maximum prices for coal at the mines in the territory described in the order covering this territory are as follows: Run of mine, $2.60; prepared sizes, $2.60; slack or screenings, $2.60.

Groverman Named

The appointment of W. H. Groverman, at Minneapolis, Minn., district representative for the bituminous and anthracite coal supply on the docks of Lake Superior and the western shore of Lake Michigan, to serve as representative of all individual dock companies, has been announced by Fuel Administrator Garfield.

NOT ENOUGH ANTHRACITE TO GO AROUND, FIGURES SHOW

With the Fuel Administration suggesting to the anthracite consuming public that they order their next winter's supply of coal after April 1, the inference should not be taken, says the General Committee of Anthracite Operators, that coal is plentiful now, and that yards are stocked up with it. During the warm season transportation is quickened, but the output cannot be much greater now, with the below normal number of mine workers, than it was during colder weather conditions. A practical answer why coal is scarce can be found from the state population figures taken from the Provost Marshal General's report to Secretary of War Baker on the selective service act of 1917.

The total population of the anthracite burning area, which includes New England, the Middle Atlantic states, and the District of Columbia, is 32,877,609. If merely 25,000,000 of this total would be taken for a basis, it would mean that there would be three tons to every consumer, there having been 77,000,000 tons of anthracite mined in 1917.

Three tons, or 6,720 pounds, makes 672 shovels at 10 pounds for an average. For the 240 days in the coal year, this would mean about three shovelsful per day as the burning quota, for each person, to equalize last year's output.

When it is also considered that this deduction does not include the government coal supply, householders can readily understand why anthracite will continue to be scarce, despite the idea that coal will be plentiful this summer, and that the "stocking-up" process is merely a matter of ordering from the retailer.

The fact should also be noted that the constantly increasing number of war industries in the anthracite burning area, with the larger body of workers, also adds to the growing demand for anthracite in the coming spring and summer seasons now approaching.

Wayne County Prices

Further classification of bituminous coal mines in West Virginia was made recently, establishing new maximum prices for mines in the whole of Wayne county.

The mines affected are a part of the Kenova and Thacker fields. The prices do not include the allowance made to operators for such wage increase as may be applicable under the Washington wage agreement.

The maximum prices fixed in the order are: Run of mine $2.40; prepared sizes $2.65; slack or screenings $2.15.

The former prices were: Run of mine $2; prepared sizes $2.25; slack or screenings $1.75. The order became effective March 5.

TO SPEND $25,000,000 FOR ORDNANCE BASE IN FRANCE

An ordnance base that will cost approximately $25,000,000 is under construction in France and good progress in building is reported. The ordnance base will include approximately 20 large storehouses, 12 shop buildings, 100 smaller shops and magazines and machine tool equipment costing about $5,000,000.

The project includes a gun repair plant equipped to reline more than 800 guns a month; a carriage repair plant of large capacity; a motor vehicle repair plant, capable of overhauling more than 1,200 vehicles per month; a small arms repair plant with a capacity for repair of some 58,000 small arms and machine guns per month; a large shop for the repair of horse and infantry equipment, and a reloading plant capable of reloading about 100,000 artillery cartridge cases per day.

There will be in addition forges, carpenter shops and other auxiliary buildings.

Much of the construction material and equipment have arrived in France and actual construction was begun several weeks ago. Practically all of the essential materials have been contracted for and priority orders issued by the War Industries Board have expedited deliveries.

It is estimated that for the maintenance of the ordnance base approximately 450 officers and 16,000 men will be required. Some difficulty was experienced in obtaining the initial units trained in manufacturing industries.

When it was found impracticable to obtain enlisted men in large numbers and of the required qualifications from the selective draft army, a recruiting campaign was instituted by the ordnance base division and by the first of the year eight thousand men had been enlisted for this special work. The training of technical troops for service with the ordnance base has proceeded satisfactorily and both from the recruited forces, and the selective draft, personnel men will be obtained to operate the immense ordnance base on foreign soil.

Ferret Out Dirty Coal

More than 1,600 tons of anthracite coal were condemned in the Pennsylvania markets by representatives of the United States Fuel Administration recently in connection with the Fuel Administration's campaign to compel the delivery of clean coal.

At the mines inspectors of the Fuel Administration also condemned several cars a day because they were loaded with coal, much of which did not come up to the standard as to size and quality.

PUTS BAN ON NEW INDUSTRIAL PLANTS FOR NON-WAR WORK

The following resolution has been passed by the War Industries Board:

Whereas it has come to the notice of this Board that new industrial corporations are being organized in different sections of the United States for the erection of industrial plants which cannot be utilized in the prosecution of the war; and

Whereas plans are being considered by certain states, counties, cities and towns for the construction of public buildings and other improvements which will not contribute toward winning the war; and

Whereas the carrying forward of these activities will involve the utilization of labor, materials and capital urgently required for war purposes. Now, therefore, be it

Resolved by the War Industries Board, That in the public interest, all new undertakings not essential to and not contributing either directly or indirectly toward winning the war, which involve the utilization of labor, material and capital required in the production, supply or distribution of direct or indirect war needs, will be discouraged, notwithstanding they may be of local importance, and of a character which should, in normal times, meet with every encouragement. Be it further

Resolved, That in fairness to those interested therein, notice is hereby given that this board will withhold from such projects priority assistance, without which new construction of the character mentioned will frequently be found impracticable, and that this notice shall be given wide publicity, that all parties interested in such undertakings may be fully apprised of the difficulties and delays to which they will be subjected and embark upon them at their peril.

IMPORTS OF CHROME ORES ARE TO BE REDUCED

The Committee on Mineral Imports and Exports, representing the Shipping, War Trade, and War Industries Boards, have made recommendations for embargoing importations of Chromite from other countries, except North, South, and Central America and the West Indies. This recommendation was made after searching investigation, conferences with the various government departments in Washington, through the Joint Information Board, and after conferences with chromite producers, and consumers, and importers.

"Manufacturers of ferro-chrome will have to use, if necessary, lower grade ores than those to which they have been accustomed," says the committee. "This appears to be perfectly feasible from a metallurgical standpoint, and it will be simply a matter of adjustment of practice. Steel makers can get along with a lower grade of ferro-chrome if it becomes necessary."

LICENSES WILL COVER COAL MOVEMENT OUTSIDE OF ZONES

The United States Fuel Administration will issue permits for the shipment of coal for special purposes to points outside the zone in which the particular coal desired originates. The purpose of this zone plan is to save transportation by the elimination of unnecessary long hauls and avoidable cross hauls, thereby conserving the car supply and increasing car utility. This should result in an increased production of coal.

The zones apply only to bituminous and canned coals and do not apply to anthracite coal or coke. Embargoes under this zoning plan will affect shipments of coal in any class of car equipment and will be put into effect jointly by the United States Fuel Administrator and Director General of Railroads on April 1.

It is recognized, however, that some consumers will require, for illuminating or producer gas, by-product coking, metallurgical, smithing or other particular purposes, special colas which are not produced in the coal districts from which the zoning plan permits shipments to be made. Such requirements will be cared for by permits, issued by the United States Fuel Administration upon proper evidence that request for such permit is warranted.

Application forms may be obtained from the United States Fuel Administration and applicants should be governed by the following instructions:

All applications for permits must be addressed to the United States Fuel Administration, Coal Zone License Bureau, Room 6209, New Interior Building Washington, D. C.

Applications must be made by the consumer stating in detail the necessity for the special coal and amount required during the period for which permit is requested.

In the case of a consumer having more than one plant or requiring special coal from more than one producer, separate applications for permit will be required for shipment from each producer as well as to each plant.

Separate applications for permits will be required for each railroad on which shipments originate.

Permits are revocable at the discretion of the United States Fuel Administration.

Anthracite Industry's Safety Work

The bettering of safety devices in and about the mines for the protection of the mine workers with attendant fewer fatalities, has come to the attention of the United States Army medical officers who are now making a tour of inspection in the Lehigh region, and taking close-hand observations of the first-aid-to-the-injured methods as performed by the employees of the anthracite industry.

Resolutions Passed by the Northwest Mining Convention, Feb. 11-17, 1918.

Whereas, we are reliably informed that the Government, for the purposes of settlement of adverse trade balances, for the assistance of our Allies and for other urgent Government needs, has in contemplation the introduction of a bill providing for the withdrawal of a considerable part of the reserve of silver now standing behind United States Silver Certificates in circulation and the temporary withdrawal of the said certificates under a plan whereby the Government proposes purchasing silver at the fixed price of one dollar per ounce for its immediate needs and for the replacement of silver so withdrawn from the Treasury until the silver withdrawn, as hereinbefore stated, shall have been completely replaced, and

Whereas, it is the desire of the silver miners of the West to cooperate with the Government in any plan which, at this time, may be found necessary to the successful conduct of the war, having in mind, however, that the real interests of the Government will not be served unless the prices fixed for the products of its mines be sufficiently high to maintain production to that point where the present and future needs of the Nation and its Allies will be properly cared for. Therefore be it

Resolved, That this Conference of the Northwest Mining Association, held at Spokane, the 14th day of February, 1918, does hereby endorse the proposed plan of the Government, hereinbefore stated, and pledges its cooperation in securing such legislation as may be necessary to make the said plan effective, and

Resolved further, That a copy of this resolution be forwarded to Mr. J. F. Callbreath, Secretary of the American Mining Congress, Washington, D. C., with instructions to bring the same to the attention of those who may be instrumental in its accomplishment.

CHAS. A. GRAM,
Chairman Committee on Resolutions.

Whereas, the Government reports concerning mines and mining are often insufficient to meet the immediate needs of persons or corporations desiring data regarding certain phases of mining operations, costs of production, etc. Be it

Resolved by the Conference, that the American Mining Congress be requested to establish a Bureau of Economics for the purpose of assembling from federal, state and private sources, statistics, cost, transportation, history, etc., of every phase of mining, including oil and gas, and to classfy and promulgate such information for the assistance of the Congress of the United States, intending investors and publishers.

CHAS. A. GRAM,
Chairman Committee on Resolutions.

Whereas, the War Minerals Committee has recently advocated the initiation of a bill proposing to place mines and mine operation under Federal control, and

Whereas, such proposal was not based upon the actual conditions as they exist in the states where metal production is an established and important industry and which conditions would have been known by the War Minerals Committee through inquiry, and

Whereas, there is a present tendency in legislation to ignore the rights and requirements of those who have invested millions of capital and years of labor in the upbuilding of the mining industry. Therefore be it

Resolved, That the Northwest Mining Association in Convention assembled does hereby declare its protest against any proposal for the introduction or consideration of any legislation which in any way would aim to place the control of mines producing gold, silver, copper, lead, zinc or other metal or minerals under Government control, unless there should develop an actual shortage in the production of such minerals, that in the opinion of this convention there does not now and from existing evidence probably will not exist, any such shortage which cannot be overcome by reasonable cooperation on the part of the Government in the matter of transportation and through some methodical stimulation of the production of gold and silver. Be it further

Resolved, That we endorse the request of the American Mining Congress that the Government encourage by subsidy, direct and indirect, the production of such rare metals as molybdenum, tungsten, manganese, chromium, pyrites, potash and nitrates as a measure of war and to place these metals upon a permanent basis of production.

CHAS. A. GRAM,
Chairman Committee on Resolutions.

Whereas, the production of metals, both rare and commercial, coal, oil and gas are of vital importance in the development and stabilizing of commerce in the United States, and

Whereas, these wasting industries demand technical well-trained and highly efficient management under especially established laws and regulations, and

Whereas, the mining industry in all its phases constitutes the greatest collective industry in the United States because of the fact that it furnishes the sinews of the war and the strength of the nation in peace. Be it

Resolved, That it is the sense of the Northwest Mining Association that this great industry should not be subject to the rulings and decisions of a subdepartment or any group of sub-departments of the Federal Government, but should be under the executive control of a department of mines whose executive head should be a member of the cabinet of the President of the United States.

CHAS. A. GRAM,
Chairman Committee on Resolutions.

Resolved, that the Northwest Mining Association in Convention assembled extend to the American Mining Congress a vote of appreciation for its labors in behalf of the mining industry and pledges its unqualified support in national work. Be it further

Resolved, That the Board of Directors of this Association be authorized to appropriate a sufficient sum either from the treasury of the Association or otherwise, for the purpose of making this Association an annual contributing and cooperating member of the American Mining Congress.

CHAS. A. GRAM,
Chairman Committee on Resolutions.

Resolved, That we unqualifiedly and strongly approve the Walsh-Pittman bill in so far as it provides for throwing open to entry and patent the mineral lands in public domain heretofore withdrawn from entry, but that we unqualifiedly condemn and disapprove said bill in as far as it provides for the leasing system for mineral lands on the public domain.

CHAS. A. GRAM,
Chairman Committee on Resolutions.

Resolved, That in the opinion of the Northwest Mining Association, H. R. 8761, introduced by Mr. Kelly of Pennsylvania, January 16, 1918, embraces provisions that are incompatible with the successful conduct of mining operations, and subversive of fundamental business principles, therefore, this Association hereby respectfully petitions and prays the Senators and Congressmen of the 65th Congress to reject all bills of like tenor.

Resolved, That copies of this resolution be sent to the Senators and Congressmen of the Pacific Northwest States.

CHAS. A. GRAM,
Chairman Committee on Resolutions.

The Anaconda Copper Company will construct a plant at Great Falls, Montana, which it is estimated will release 50,000 tons of shipping now carrying manganese to this country from Brazil. President Ryan of the Anaconda Company says that shipping thus released would be capable of carrying 300,000 tons of food and material annually to Europe for our armies.

PERSONALS

The Huff Electrostatic Separator Company, owners and manufacturers of the Electrastatic Process of ore concentration, has opened an office at 120 Broadway, New York City, for consultation regarding ore dressing problems, especially the dry concentration of ores and the separation of valuable minerals from others which are commercially detrimental.

The Worthington Pump & Machinery Corporation has changed the personnel of its organization as follows: James E. Sague, vice-president in charge of engineering and manufacturing; Leon P. Feustman, vice-president in charge of general commercial affairs, including contracts, prices, purchases, traffic, etc.; Frank H. Jones, vice-president in charge of sales; William Goodman, assistant to vice-president; William Schwanhausser, chief engineer; Edward T. Fishwick, general sales manager, and Charles E. Wilson, assistant general sales manager. C. Philip Coleman is president of the company.

Arthur Lewis, formerly of the G. B. Markle Company, has been appointed to the position recently left vacant through Douglas Bunting's promotion to Division Superintendent of the Lehigh & Wilkes-Barre Coal Company.

A. Scott Thompson of Miami, Okla., will be in Washington for several months looking after the interests of the lead and zinc operators of the Miami district.

John D. Clark of Cheyenne, Wyo., is again in Washington.

Judge J. J. Shea of Tulsa, Okla., was in Washington the greater part of March.

Harry L. Day and Jerome Day of Wallace, Idaho, are in the East.

C. M. Roehrig of Ashland, Ky., was in Washington during the month looking after the interests of the coal people of Eastern Kentucky.

William M. Conrad, assistant secretary of The American Mining Congress, after spending several weeks at the Washington headquarters, has left for southern territory. Mr. Conrad will establish headquarters in Louisville, Ky., and will devote his entire time to the assistance of the mining industry of the South.

Jerome J. Day, who has been in the East, was unexpectedly called to his home at Wallace, Idaho, on matters of important business.

The Division of Conciliation, of the Department of Labor, announces the adjustment of 24 industrial disputes in various sections of the country since March 1. More than 50,000 workers were directly and indirectly involved.

Thirty thousand acres of coal land in Harlan County, Ky., have been taken over by the Frick interests, who announce that they will expend $9,000,000 in its development. A modern town will be built. They expect to produce 10,000 to 12,000 tons of coal per day.

A luncheon was given by Director Manning, of the United States Bureau of Mines, on March 25, at which was discussed the ways and means for developing the rare metals industry of this country, to meet the conditions created by the war. Those present included: Franklin K. Lane, Secretary of the Interior; Representative Martin D. Foster, Chairman of the House Mines and Mining Committee; H. C. Hoover, Food Administrator; Sidney Jennings, President American Institute of Mining Engineers; J. F. Callbreath, Secretary The American Mining Congress; George Otis Smith, Director of the Geological Survey; Senator C. B. Henderson, Pope Yeatman, W. Y. Westervelt, C. M. Wooley, E. F. Gay, C. W. Goodale, A. G. White, C. K. Leith, E. C. Bradley, Sidney Mudd, Bradley Stoughton.

Franklin W. Merritt, of Minneapolis, Minn., was in New York and Washington during the month. William Pascoe, superintendent of Mr. Merritt's properties, was with him.

George H. Crosby is at Duluth again after spending several months at Pasadena, Calif.

J. F. Robinson, of Miami, Oklahoma, was a recent Washington visitor. Mr. Robinson is president of the Commerce Mining and Royalty Company, the largest lead and zinc mining company in the Miami-Joplin district. He and his associates were the pioneers in the New Miami field, and much credit should be given them for the present state of development of that field.

W. G. Swart, whose headquarters are in Duluth, but who has been spending the greater part of his time traveling from Duluth to Everywhere, on a recent visit to the headquarters of the American Mining Congress, advises that he has seen so little of his family or friends recently that he has christened his "private" car (for which he pays the nightly sum of $2.50) as "Hello" going West, and "Good-bye" coming East. Mr. Swart is the manager of one of the largest low-grade iron ore deposits in the United States.

J. H. Holmes, Jr., president of the Tungsten Products Co., of Boulder, Col., was in Washington during the month.

A statement recently given out by the National Educational Association, says that there are 33,000,000 persons of foreign origin in this country, 13,000,000 being of alien birth. Five million do not speak English, and there are 2,000,000 illiterate, 3,000,000 unnaturalized males of voting age, and 3,000,000 alien males of military age.

Douglas Bunting has been appointed General Superintendent of the Wyoming Division of the Lehigh & Wilkes-Barre Coal Company.

Victor Rakowsky, of Joplin, Mo., is again in Washington.

Immigration to this country for the fiscal year, ended June 30, is indicated at 100,000, against nearly 300,000 for the previous year.

Petroleum Production Increases

Official returns indicate a gratifying increase in petroleum production between January and February, 1918, in all fields except Oklahoma, Kansas, Central and North Texas, Gulf Coast, and Rocky Mountain, which suffered a slight decrease. Compared with February, 1917, substantial gains were made last month in all areas of oil production outside of the Lima-Indiana and Illinois fields, which have been steadily declining for several years.

Except in the Appalachian, Illinois, and Gulf Coast fields, the demand for crude petroleum by refiners and other consumers in February, 1918, exceeded both the current production and, excluding the Rocky Mountain field, the quantity used in January, 1918.

Petroleum reserves were correspondingly reduced in February, 1918, in all fields where the demand was greater than the current production. At the end of February, 1918, the quantity of storage oil in the United States was materially less than at the end of February, 1917, except in central and north Texas, where a moderate addition to stock was made, according to J. D. Northrop, of the Geological Survey.

EFFECT OF PATENT

A patent for a mining claim within the jurisdiction of the Land Department is the judgment of that tribunal upon the evidence before it that the patentee is entitled to the mining claim therein described and the conveyance of the legal title to him. The validity, the extent, and the boundaries of the claim, are unavoidable issues which that tribunal must adjudge in sustaining any part or all of the claim and in such case the adjudication of matters within the jurisdiction of the Land Department are not subject to collateral attack, but can be avoided only by direct suit for that purpose on the ground of fraud or error of law.

Conkling Mining Co. *vs.* Silver King Coalition Mines Co., 230 Federal, 553, p. 558.

(Continued from page 5)

Electric Railway Equipment Company	**27**
Egyptian Timber Company	**21**
Elmore, G. H.	**29**
Equitable Powder Company, The	**10**
General Briquetting Co., The	**41**
General Electric Company	**7**
Goodall Brothers	**37**
Goodin, Reid & Company	**8**
Goodman Mfg. Company	**6**
Goodrich Rubber Co., The B. F.	**21**
Granville Supply Company	**35**
Hazard Mfg. Company	**14**
Hercules Powder Company	**11**
Hockensmith Wheel & Mine Car Co.	**27**
Hoffman Brothers	**37**
Holmes & Bros., Inc., Robert	**16**
Hunt & Company, Robert	**33**
Illinois Zinc Company	**33**
Indiana Laboratories Co., Inc., The	**37**
International High Speed Steel Co.	**4**
Irvington Smelting & Refining Works	**33**
Jeffrey Mfg. Company, The	**Cover**
Koering Cyaniding Process Company	**23**
Laubenstein Mfg. Company	**35**
Ledoux & Company, Inc.	**33**
Leetonia Tool Company, The	**35**
Lehigh Coal & Navigation Co., The	**42**
Longyear Company, E. J.	**33**
Machinery Warehouse & Sales Co.	**41**
Macomber & Whyte Rope Company	**14**
Manhattan Rubber Mfg. Company	**19**
Marioneaux, Stout & Beck	**37**
Monongahela Wood Preserving Co.	**35**
Morse Chain Co.	**Cover**
Mudd, Seeley W.	**37**
Nicholson & Co., W. H.	**37**
Ohio Brass Company, The	**25**
Ohio Grease Company, The	**31**
Pacific Tank & Pipe Company	**31**
Payne, Henry Mace	**37**
Phelps-Dodge Corporation	**33**
Phillips Mine & Mill Supply Company	**18**
Pitkin, Lucius, Inc.	**33**
Pneumelectric Machine Co., The	**16**
Professional Cards	**37**
Prox Company, The Frank	**29**
Quaker City Rubber Company	**19**
Randle Machinery Company, The	**35**
Richards, J. W.	**37**
Roebling's Sons, John A.	**14**
Ruhl & Stewart	**37**
Springer, Andrew M.	**17**
Standard Scale & Supply Co., The	**18**
Stephens-Adamson Mfg. Co.	**20**
Taylor, Samuel A.	**37**
Thorne, Neale & Company, Inc.	**42**
Tout & McCarthy	**37**
Union Electric Company	**23**
Vulcan Iron Works	**8**
Western Chemical Co.	**37**
West Virginia Rail Company, The	**35**
Wier Frog Co.	**25**
Wilmot Engineering Company	**35**
Wood Equipment Company, The	**6**
Worthington Pump & Machinery Corp.	**12**
Wyoming Shovel Works	**3**

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Manhattan Rubber Co., Passaic, N. J. (Rubber Belting "Condor.")

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Equitable Powder Co., East Alton, Ill.
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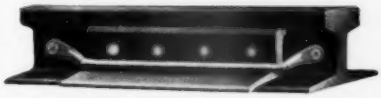

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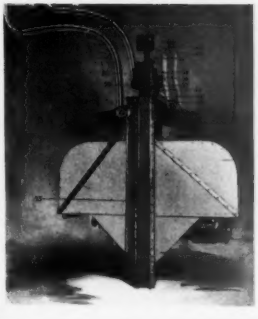

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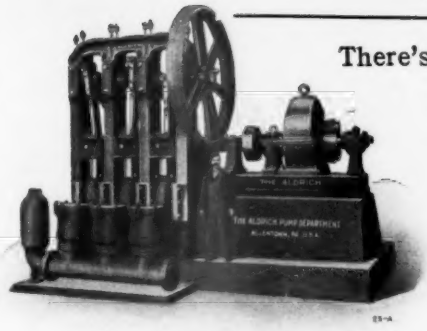

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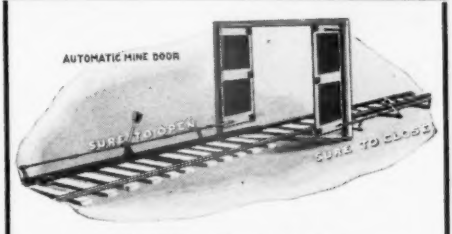

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Buyers' Directory

(Continued from page 78)

TUBES

Randle Machinery Co., The, Cincinnati, Ohio

TURBINES, STEAM

General Electric Co., Schenectady, N. Y.

VALVES

Electric Service Supplies Co., 17th & Cambria Sts., Philadelphia, Pa.
Ohio Brass Co., Mansfield, Ohio

WAGON LOADERS

Jeffrey Mfg. Co., 958 N. Fourth Street, Columbus, Ohio

WEIGHERS

Indiana Laboratories Co., Hammond, Ind.
Koering Cyaniding Process Co., Salt Lake City, Utah
Ledoux & Co., Inc., New York
Lucius Pitkin, Inc., 47 Fulton Street, New York

WEIGHTS

Ainsworth, Wm. &. Son, Denver, Colo.

WIRE & CABLE

American Steel & Wire Co., Chicago, New York
Electrical Material Co., 618 W. Jackson Boulevard, Chicago, Ill.
Hazard Mfg. Co., Wilkes-Barre, Pa
Roebling's Sons, The John A, Co., Phila., Pa.

WORMS (Worm Wheel and Racks)

Electric Service Supplies Co., 17th & Cambria Sts., Philadelphia, Pa.

ZINC BOXES

Koering Cyaniding Process Co., Detroit, Mich.

ZINC (Rolled Sheets and Strips)

Illinois Zinc Co., Peru, Ill.

EQUIPMENT
USED AND REBUILT

Ready for Delivery: Buckets, Cars, Compressors, Crushers, Drag-Lines, Cranes, Hoisting Engines, Steam Shovels, Rails, (all weights) and Locomotives.

MACHINERY WAREHOUSE & SALES CO.
Successors to GEO. C. MARSH & CO.
707 Old Colony Bldg., Chicago

Convert your fine silt or slack into Briquettes by our

DUTCH PROCESS

It's a simple and efficient method

Write for Bulletins, Series A

THE GENERAL BRIQUETTING CO.
25 Broad Street New York

COOPERATION

By LEIGH MITCHELL HODGES

What you see in a comb of honey is a pound of perfect sweetness encased in a wax structure that is a triumph of architectural engineering.

You pay twenty-five or thirty cents for this, take it home, spread it on your bread, to tickle your palate and help fill your physical fuel bin, and—

What you don't see in this comb of honey is a little army of bees working harder than Trojans ever worked, sucking the ambrosia from clover blossoms.

Your pound of honey contains 7,000 grains of sugar. Each clover blossom provides about one-eighth of a grain, so this pound represents the sweet fruitage of 56,000 clover heads.

But the clover head is composed of about sixty florets or flower tubes. To extract the hidden sweet the bee must probe each of these. This means some sixty separate operations on each flower.

If one bee contracted to gather a pound of honey, that bee would have to explore 3,360,000 of these tiny tubes to secure the material. Allowing five seconds for each exploration, and twelve hours a day, it would take this bee some four hundred days to produce a pound.

And this would represent only the gathering of the honey, not the time required for building the wax-case and storing the sweet stuff.

But there never yet was a hive with just one bee to each comb.

Nature commands pooled effort.

Hundreds of bees to each comb made a comparatively quick and easy operation of what would be an impossible task for one bee working alone.

So what we do not see in the comb of honey is the greatest of lessons in the greatest of success-makers—Cooperation.

On every side nature flaunts this lesson in man's face.

The seed itself is nothing.

Sun, soil and moisture must cooperate with the latent germ in order to produce plant life.

The solidest rock is only cooperating atoms.

The strongest man is weak alone. Only by working with others or winning others to work with him can he achieve worth-while results.

The million men now training to fight under our flag in France couldn't gain a foot of Teuton territory if they went to work one by one.

Cooperating, they can turn the tide in favor of freedom.

The biggest business is bound for failure if its workers do not cooperate.

It is a machine whose parts do not work together. It may run for a while on its own momentum, but it is headed for the dump-heap.

To cooperate is to join forces and something more. It is to join hearts as well as hands, and slip a little soul in the bargain.

Not to cooperate is to court loneliness, life-rust and loss.

The a. B. c. of success is this—Be a Bee!

COOPERATE!

(MORAL: Join THE AMERICAN MINING CONGRESS—the greatest cooperative mining organization.—See page 80.)

THE LEHIGH COAL AND NAVIGATION COMPANY

Philadelphia, Pa.

MINERS OF

ANTHRACITE COAL

"The Best Since 1820"

SALES OFFICES:

Philadelphia, New York, Boston, Springfield, Syracuse, Buffalo

Thorne, Neale & Company

Incorporated

601-610 Stephen Girard Building, Philadelphia, Penna.

Temple Collieries—**Harry E.**, L. V.; **Forty Fort**, L. V.; **Mount Lookout**, L. V. or D., L. & W.; **Lackawanna**, D., L. & W. or Erie.

Schuylkill Collieries—**Buck Run**, P. & R.; **New Castle**, P. R. R.

ANTHRACITE
AND
BITUMINOUS
COALS

Agents for
Pardee Bros. & Co.
Lattimer-Lehigh

Bituminous—**Sonman Shaft**, "B" Vein; **Sonman Slope**, "E" Vein.

Sonman Smithing—1½-inch Screened, Low Sulphur, Spongy Coke

SHIPMENTS—RAIL OR WATER

CHAS. E. FERNBERG, *General Sales Agent*
New York Office: 17 Battery Place

Baltimore **Boston** **Chicago** **Buffalo** **Mauch Chunk**

Cable Address: "THORNEALE"

"Serve Together"

THE MORSE CHAIN IS SERVING—

On Submarines: By driving the oil pumps, and by operating the steering and diving controls.

On Warships: By operating gun rammers, the turret turning mechanism, and the ammunition hoists.

In Arsenals and Forts: By operating big guns, and by driving lineshafts and machine tools.

At Panama: By operating the safety gate hoists at the locks.

In Mines: By driving pumps, compressors, blowers, fans and conveyors.

In Steel Plants: By driving rolling mills, wire drawing benches, machine tools, etc.

In Industrial Plants Everywhere (producing Munitions, Guns, Ships, Airplanes, Nitrates, Textiles, Foodstuffs, etc.): By driving machines and lineshafts.

Serve by Saving!

You Can Help Win the War by Investing in

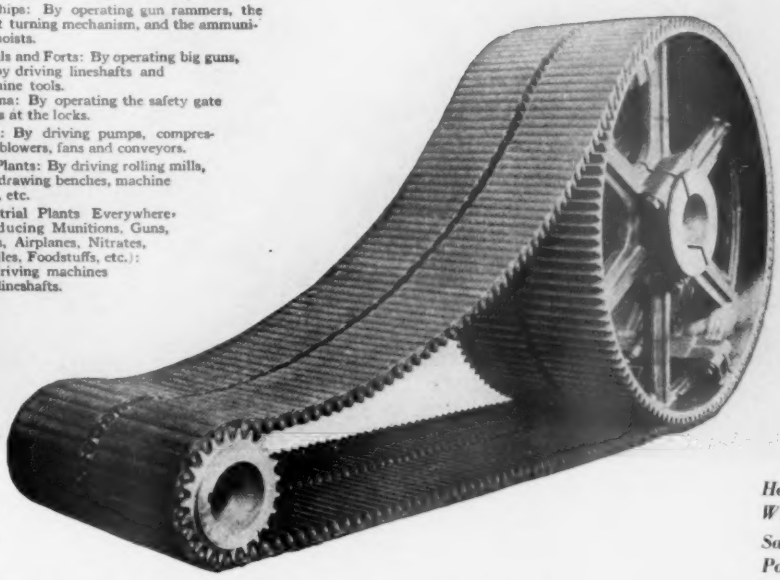
W.S.S.

WAR SAVINGS STAMPS
ISSUED BY THE
UNITED STATES
GOVERNMENT

War Savings Stamps are "little baby bonds on which the government pays compound interest. You can invest as little as 25 cents at a time, and as often as you wish.

For Sale at Postoffices, Banks, Trust Companies and Other Agencies

Do Your Bit in the Thrift Campaign



Maintain Utilities at Maximum Efficiency

Help Win Save Power

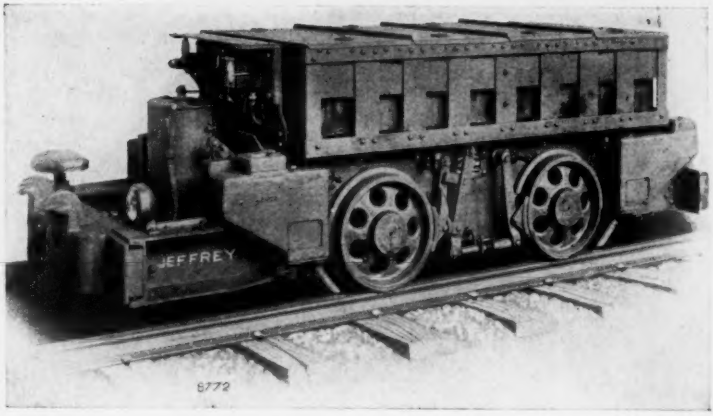
WRITE FOR INFORMATION. Address nearest Office. FACTS WILL SURPRISE.

MORSE CHAIN CO., *Largest Manufacturers of Silent Chains in the World* ITHACA, N. Y.

Boston: 141 Milk St.
Chicago: Merchant L. & T. Bldg.
Cleveland: Engineers' Bldg.
Detroit: 1003 Woodward Ave.
Greensboro, N. C.: 805 Ashboro St.
New York: 50 Church St.
Pittsburgh: Westinghouse Bldg.
San Francisco: Monadnock Bldg.
Atlanta: Earl & Scott, Chandler Bldg.
Kansas City: Morse Engineering Co., R. A. Long Bldg.
Minneapolis: Strong-Scott Manufacturing Co., 3d St., S.
St. Louis: Morse Engineering Co., Chemical Bldg.

Canada: Montreal, Jones & Glassco, St. Nicholas Bldg.
Toronto, Jones & Glassco, Traders' Bank Bldg.

Speed Up Production and Help to Meet War-Time Needs



THE unprecedented demand for Coal and Metals necessitates the use of every modern mechanical equipment, if maximum output is to be obtained.

Many Mining Companies are speeding up their haulage methods, lowering operating costs and making valuable labor available for other and more useful purposes by using

Jeffrey Storage Battery Locomotives

The "Jeffrey" will gather as many cars daily to and from the working places as several mules can handle, in less time and much less cost.

Goes into low headings that the mule cannot reach—and practically anywhere that track is laid. Does not require skilled labor to operate.

Write for Special Bulletins

THE JEFFREY MFG. CO., 958 North 4th St., Columbus, O.

BRANCHES: New York Boston Charleston, W. Va. Philadelphia Scranton Pittsburgh Chicago St. Louis Dallas Birmingham Cleveland Milwaukee Montreal

Denver Office: First National Bank Building Seattle Office: L. C. Smith Building